CLAIMS:

1. Apparatus for removing an aerofoil structure from an arcuate casing section of a rotary machine, the apparatus comprising:

a frame which supports or is supported on the arcuate casing section;

a reaction arm which is mounted in the frame about an axis parallel to a rotational axis of the arcuate casing section, a free end of the reaction arm being adapted to apply a force to the aerofoil structure; and

a torque multiplier acting between the reaction arm and the arcuate casing section, the torque multiplier being operable to apply the force to the aerofoil structure in a substantially circumferential direction of the arcuate casing section.

2. Apparatus as claimed in claim 1, further comprising drive means for powering the torque multiplier.

3. Apparatus as claimed in claim 2, wherein the drive means comprises an electric motor or a compressed air actuator or a hydraulic actuator.

4. Apparatus as claimed in any preceding claim, further comprising a torque limiter for limiting the torque which can be applied to the aerofoil structure by the torque multiplier.

5. Apparatus as claimed in any preceding claim, wherein the arcuate casing section is adapted to pivot in the frame.

6. Apparatus as claimed in any preceding claim, wherein the frame is adapted to support the arcuate casing section such that a concave side of the arcuate casing section faces to one side or downwardly during removal of an aerofoil structure.

7. Apparatus as claimed in any preceding claim, wherein the reaction arm is rotatably mounted in the frame about an axis which is coincident with a rotational axis of the arcuate casing section.

8. Apparatus as claimed in any preceding claim, wherein the reaction arm is bifurcated.

9. Apparatus as claimed in any preceding claim, wherein the reaction arm comprises two separate elongate elements which are independently rotatable about the rotational axis of the arcuate casing section.

10. Apparatus as claimed in any preceding claim, wherein the length of the reaction arm is adjustable.

11. Apparatus as claimed in any preceding claim, wherein the reaction arm is mounted on a shaft which is itself rotatably mounted in the frame.

12. Apparatus as claimed in claim 11, wherein the shaft tapers, such that it has the form of a conical drum.

13. Apparatus as claimed in claim 11 or claim 12, further comprising a ratchet mechanism between the shaft and the torque multiplier.

14. Apparatus as claimed in claim 11 or claim 12, further comprising an adjustable gear mechanism between the shaft and the torque multiplier.

15. Apparatus as claimed in any preceding claim, further comprising an insert which is located between the reaction arm and the aerofoil structure, adjacent to one face only of the aerofoil structure.

16. Apparatus as claimed in claim 15, wherein the insert is shaped to conform to the contours of the front or back of the aerofoil structure.

17. Apparatus as claimed in claim 15 or 16, wherein the insert is fixed to the reaction arm.

18. Apparatus as claimed in any of claims 15 to 17, wherein there are a plurality of inserts, each of a different shape, so that an appropriate insert shape can be selected and moved into an operative position to engage the aerofoil structure.

19. Apparatus as claimed in any of claims 15 to 18, wherein the insert is adapted to engage more than one aerofoil structure at a time.

20. Apparatus as claimed in any preceding claim, further comprising a component catcher attached to the frame, adapted to catch components ejected from the casing section.

21. Apparatus as claimed in any preceding claim, wherein the component catcher comprises a wire net, or a plastic net, suspended from the frame.

22. A method of removing an aerofoil structure from an arcuate casing section of a rotary machine, the method comprising the steps of:

(a) placing a free end of a reaction arm against a face of the aerofoil structure; and

(b) applying a substantially continuous force to the reaction arm, and thereby to the aerofoil structure by means of a torque multiplier, the force being applied to the face of the aerofoil structure in a substantially circumferential direction of the arcuate casing section.

23. A method as claimed in claim 22, further comprising interposing an insert between the reaction arm and the face of the aerofoil structure.

24. A method as claimed in claim 22 or 23, further comprising catching the aerofoil structure in a component catcher situated adjacent the arcuate casing section when the aerofoil structure is expelled from the arcuate casing section.

25. Apparatus substantially as described herein, with reference to and as shown in the accompanying drawings.

26. A method substantially as described herein, with reference to the accompanying drawings.

CLAIMS:

1. Apparatus for removing an aerofoil structure from an arcuate casing section of a rotary machine, the apparatus comprising:

a frame which in use supports or is supported on the casing section;

a reaction arm which is mounted in the frame about an axis parallel to a rotational axis of the arcuate casing section, in use a free end of the reaction arm being adapted to apply a force to the aerofoil structure; and

a torque multiplier acting between the reaction arm and the casing section, in use the torque multiplier being operable to apply the force to the aerofoil structure in a substantially circumferential direction of the arcuate casing section.

2. Apparatus as claimed in claim 1, further comprising drive means for powering the torque multiplier.

3. Apparatus as claimed in claim 2, wherein the drive means comprises an electric motor or a compressed air or hydraulic actuator.

4. Apparatus as claimed in any preceding claim, further comprising a torque limiter for limiting the torque which can be applied to the aerofoil structure by the torque multiplier.

5. Apparatus as claimed in any preceding claim, wherein the casing section is adapted to pivot in the frame.

6. Apparatus as claimed in any preceding claim, wherein the frame is adapted to support the casing section such that a concave side of the casing section faces to one side or downwardly during removal of an aerofoil structure.

7. Apparatus as claimed in any preceding claim, wherein the reaction arm is rotatably mounted in the frame about an axis which is coincident with a rotational axis of the arcuate casing section.

8. Apparatus as claimed in any preceding claim, wherein the reaction arm is bifurcated.

9. Apparatus as claimed in any preceding claim, wherein the reaction arm comprises two separate elongate elements which are independently rotatable about the rotational axis of the arcuate casing section.

10. Apparatus as claimed in any preceding claim, wherein the length of the reaction arm is adjustable.

11. Apparatus as claimed in any preceding claim, wherein the reaction arm is mounted on a shaft which is itself rotatably mounted in the frame.

12. Apparatus as claimed in claim 11, wherein the shaft tapers, such that it has the form of a conical drum.

13. Apparatus as claimed in any preceding claim, further comprising a ratchet mechanism between the shaft and the torque multiplier.

14. Apparatus as claimed in any preceding claim, further comprising an adjustable gear mechanism between the shaft and the torque multiplier.

15. Apparatus as claimed in any preceding claim, further comprising an insert which is located between the reaction arm and the aerofoil structure, adjacent to one face only of the aerofoil structure.

16. Apparatus as claimed in claim 15, wherein the insert is shaped to conform to the contours of the front or back of the aerofoil structure.

17. Apparatus as claimed in claim 15 or 16, wherein the insert is fixed to the reaction arm.

18. Apparatus as claimed in any of claims 15 to 17, wherein there are a plurality of inserts, each of a different shape, so that an appropriate insert shape can be selected and moved into an operative position to engage the aerofoil structure.

19. Apparatus as claimed in any of claims 15 to 18, wherein the insert is adapted to engage more than one aerofoil structure at a time.

20. Apparatus as claimed in any preceding claim, further comprising a component catcher attached to the frame, adapted to catch components ejected from the casing section.

21. Apparatus as claimed in claim 20, wherein the component catcher comprises a wire net, or a plastic net, suspended from the frame.

22. A method of removing an aerofoil structure from an arcuate casing section of a rotary machine, the method comprising the steps of:

(a) placing a free end of a reaction arm against a face of the aerofoil structure; and

(b) applying a substantially continuous force to the reaction arm, and thereby to the aerofoil structure by means of a torque multiplier, the force being applied to the face of the aerofoil structure in a substantially circumferential direction of the arcuate casing section.

23. A method as claimed in claim 22, further comprising interposing an insert between the reaction arm and the face of the aerofoil structure.

24. A method as claimed in claim 22 or 23, further comprising catching the aerofoil structure in a component catcher situated adjacent the casing section when the aerofoil structure is expelled from the casing section.