I/We Claim:

1. A cutter head for an excavation equipment, wherein the cutter head comprises:

a base (10) rotatable about a rotation (AX1) axis in an excavation direction of the excavation equipment; and

cutters mounted on the base (10), the cutters comprising a plurality of radial rolling cutter sets spaced-apart in a circumferential direction defined relative to the rotation axis (AX1), each of the radial rolling cutter sets comprising a plurality of radial rolling cutters (21) arranged radially starting from the rotation axis (AX1) in a radial direction defined relative to the rotation axis (AX1);

wherein, in each radial rolling cutter set, each radial rolling cutter (21) is rotatable about a radial rolling cutter rotation axis (AX2) perpendicular to the rotation axis (AX1), and each radial rolling cutter (21) is arranged to be backward by a predetermined distance in the excavation direction relative to an adjacent radial rolling cutter (21) located on a radially inner side thereof, such that front ends of all the radial rolling cutters (21) in each rolling cutter set are located on a same fitting circular arc.

2. The cutter head according to claim 1, wherein each radial rolling cutter (21) is mounted in a separate cutter case (211), and protrudes forward with respect to a front end face of the cutter case (211),

wherein the cutters further comprise radial tearing cutters (22) located at a radially outer edge of the cutter case (211) and projecting forwardly relative to the cutter case (211), wherein a distance by which the radial tearing cutter (22) protrudes with respect to the front end face of the cutter case is smaller than that by which the radial rolling cutter (21) protrudes.

3. The cutter head according to claim 2, wherein a distance between a front end of the radial rolling cutter (21) and a front end of a corresponding radial tearing cutter (22) along the rotation axis (AX1) is in a range of 15mm-20mm.

4. The cutter head according to claim 2, wherein the radial tearing cutter (22) protrudes forward parallel to the rotation axis (AX1).

5. The cutter head according to claim 1, wherein the cutters further comprise a scraper

set which is disposed at a rear side of the radial rolling cutter set in a rotational direction of the base (10), and comprises a plurality of scrapers (23) arranged in the radial direction, wherein a distance by which the scraper (23) protrudes with respect to the front end face of the cutter case is smaller than that by which the radial rolling cutter (21) protrudes.

6. The cutter head according to claim 5, wherein both sides of the radial rolling cutter set are provided with the scraper sets.

7. The cutter head according to claim 5, wherein distance between a front end of the radial rolling cutter (21) and a front end of a corresponding scraper (23) along the rotation axis (AX1) is in a range of 15mm-20mm.

8. The cutter head according to claim 1, wherein the cutters further comprise a central cutter (24) disposed in a central region (11) of the base (10) and extending in the radial direction, the central cutter (24) being configured as a sandwich structure formed by a plurality of cutter layers which are arranged in a direction perpendicular to an extending direction of the central cutter.

9. The cutter head according to claim 8, wherein the central cutter (21) comprises two sets arranged in a crisscross pattern.

10. The cutter head according to claim 8, wherein a leading edge of the central cutter (24) is formed as an inwardly concave arcuate structure.

11. The cutter head according to claim 1, wherein the cutters further comprise a central rolling cutter set (29) disposed in a central region (11) of the base (10), wherein the central rolling cutter set (29) includes a plurality of central rolling cutters (26) arranged in the radial direction, the central rolling cutter (26) having a central rolling cutter rotation axis (AX3) extending in the radial direction, wherein connection lines of front ends of the plurality of central rolling cutters (26) are formed as an inwardly concave arc shape.

12. The cutter head according to claim 11, wherein each central rolling cutter (26) constituting the central rolling cutter set (29) is disposed at a position offset relative to the

rotation axis (AX1) in the radial direction.

13. The cutter head according to claim 11, wherein the plurality of central rolling cutters (26) are supported by the same rotating shaft, or the plurality of central rolling cutters (26) are respectively supported by different rotating shafts.

14. The cutter head according to claim 11, wherein the cutters further comprise a central tearing cutter (27) disposed outside an end of the central rolling cutter set (29) in an arrangement direction of the central rolling cutters (26).

15. The cutter head according to claim 11, wherein the central rolling cutter set (29) is formed as a modular unitary structure, the base (10) is provided with a central hole (12) in the central region (11), and the central rolling cutter set (29) is integrally mounted in the central hole (12).

26. The cutter head according to claim 11, wherein cutting edges of the rolling cutters constituting the radial rolling cutter set and/or the central rolling cutter set are embedded with a hard alloy having a hardness greater than 85 HRA.

17. The cutter head according to claim 1, wherein each radial rolling cutter has an opposing radial rolling cutter set arranged at an angle of 180° relative to the rotation axis (AX1).

18. The cutter head according to claim 1, wherein a minimum gap between cutting trajectories formed by different radial rolling cutters (21) constituting the radial rolling cutter set is in a range of 60mm-75mm.

19. The cutter head according to claim 1, wherein the excavation equipment has a muck convey mechanism located behind the cutter head in the excavating direction, and the base is provided with a grating portion (13) which allows muck generated during cutting to pass through, wherein the muck convey mechanism has screw blades, and a maximum passing size of the grating portion (13) is smaller than a pitch of the screw blades.

20. An excavation equipment, wherein the excavation equipment has the cutter head

according to any of claims 1-19.