<table>
<thead>
<tr>
<th>Class 299 Mining or in Situ Disintegration of Hard Material</th>
</tr>
</thead>
</table>

1.05 **Automatic Control; Signaling or Indicating**

1.1 *Ore/rock interface determination during cutting*

1.2 *On cutter head*

1.3 *Of tunneling apparatus having a wall temporary support*

1.4 *Of hard material disintegrating machines*

1.5 *Floor working*

1.6 *Sidewall working*

1.7 *...Of advancing material handling means or roof support*

1.8 *...Of rotary cutter with advance direction coincident to rotary axis*

1.9 *...Of material handling means*

2 **Tunnel Recovery of Fluid Material**

3 **In Situ Conversion of Solid to Fluid**

4 *Input and output wells*

5 *Dissolving or chemical reaction*

6 *Melted material recovered*

7 **With Separation of Materials**

8 *Separation below surface of earth or water*

9 *Material mined or excavated underwater*

10 **Processes**

11 *Stabilizing underground structure*

12 *Mine safety*

13 *Explosive*

14 *Directly applying heat or vibration*

15 *...Forming blocks (e.g., quarrying)*

16 *...Breaking down by direct contact with fluid*

17 *...Jetting (e.g., hydraulic mining)*

18 **With material-handling means**

19 **Mine Layouts**

20 **Expansible Breaking-Down Devices**

21 *Fluid-pressed element*

22 *...Piston*

23 *...Wedge*

24 **Ice-Working Devices**

25 *...Relatively moving cutter*

26 *...Reciprocating*

27 *...Block-cutting type*

28 *...Plural blades*

29 **Hard Material Disintegrating Machines**

30 *Remote control*

31 *...Stepper-type advance-causing means*

32 *...Planer-type cutter*

33 *...With mine roof-supporting means*

34 *...Cutter attached to endless chain or cable (e.g., planer type)*

34.01 *...With auxiliary cutter*

34.02 *...Roof-type cutter*

34.03 *...Planer, plow, or knife details*

34.04 *...With fluid supply*

34.05 *...With vibrator*

34.06 *...Drive details*

34.07 *...Vertical height adjustment of entire installation*

34.08 *...Chain features and connected to miner*

34.09 *...guide, associated with conveyor, for chain or supply lines*

34.10 *...Guide for adjustment of cutter*

34.11 *...Pivoting cutter body*

34.12 *...Wire saw-type cutter*

34.13 *...Floor-working*

34.14 *...Reciprocating or oscillating cutter*

34.15 *...Resonant vibrator driven*

34.16 *...Narrow, channel-forming type*

34.17 *...Impact or hammering type cutter*

34.18 *...Hydraulic piston and cylinder type*

34.19 *...Hammer and anvil type*

34.20 *...Rotary cutter*

34.21 *...With material handling*

34.22 *...Slot-type cutter; e.g., pavement saw*

34.23 *...Drum-type*

34.24 *...Shiftable horizontally*

34.25 *...Height adjustment*

34.26 *...Yieldably mounted cutter*

34.27 *...Specific mount for fixed projecting cutters*

34.28 *...And having rotatable cutting element*

34.29 *...Freely rolling cutter*

34.30 *...Vertical cutter axis*

34.31 *...Sidewall-working (e.g., drum-type cutter)*

34.32 *...With material-handling means*

34.33 *...Undertcutting, dislodging and conveying*
...Material handler enters cut with cutter
...Rotary impeller
...Driven flexible member causes advance
...Cutter shiftable horizontally
...Driver for member rotates about horizontal axis
....Axis transverse to direction of advance
...Horizontal cutter tooth orbit
...Cutter shiftable horizontally
...Vertical cutter tooth orbit
...Cutter bodily shiftable horizontally
..Rotary cutter head with advance direction coincident to rotary axis
...With material-handling means
...Cooperates with laterally spaced heads
..Machine follows cutter into opening formed thereby
...Relatively driven cutters
....Cutting area of one encircled by another
...Radially adjustable cutting area
...With percussive-type cutter
..With material-handling means
..Undercutting, dislodging and conveying
...Undercutter shiftable horizontally
..Material handler enters cut with cutter
..Rotary impeller
..Percussive-type cutter
..Cutter shiftable horizontally
..Relatively shiftable cutters
..Shiftable to operate in vertical or horizontal cutter tooth orbit
..Cutter shiftable horizontally
..Horizontal cutter tooth orbit
..Shiftable vertically
..Cutter shiftable vertically
..Horizontal cutter tooth orbit
..Vertical cutter tooth orbit

CUTTER TOOTH OR TOOTH HEAD
..Plural heads moving relative to each other
..Adjustable head

Cleansing fluid passage
..Fluid feed distributor or controller (e.g., manifold)
..Nozzle or seal details
..Endless-chain type head
..Plural teeth on single link
..Nontracking tooth arrangement
..Adjustable tooth
..Tooth mounted on helical head portion or head with helical conveying portion
..Percussive tooth or bit
..Plural cutting edges on tooth, pick, or bit
..Clamped tooth holder or tooth mount
..Wear shield or replaceable wear sleeve
..Wear resistant feature for tool body (e.g., hard facing)
..Rolling or rotatable type bit mount
..Having a spring biased retainer
..Planar type bit mount
..Tooth mounting spring biased
..Rolling or rotatable bit
..Insert or tip shape
..Planer-type cutter insert or tip shape
..Insert or tip mounting feature (e.g., soldering, brazing, friction or interference fit)

MISCELLANEOUS

FOREIGN ART COLLECTIONS

FOR CLASS-RELATED FOREIGN DOCUMENTS

December 2000