Background Information:

Mine Machines, Coal Cutting

In the early days of using coal, loose coal would be gathered by hand where coal seams reach the Earth’s surface (outcrop). Hand tools such as picks were used to get the coal. As seams were mined underground, sharpened hand tools were the standard equipment and continued to be used in small mines until the 1950s.

The earliest coal cutting machines used a spinning disk, or a cutting arm like a chain-saw, to cut a slice from the softest part of the seam, often at the bottom, freeing up the coal to fall naturally, be cut down by hand picks, or brought down by wedges or even explosives.

Later cutting machines were designed to cut all the seam, so there was no need for an undercut. Trepanners were a type of coal cutter that used a spinning auger which would cut into the coal like an apple corer, and turrets on the top or at the sides, to cut and peel large chunks away from the face.
An image of a miner using a coal-cutting machine to undercut the seam.

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A trepanner cutting along a coal seam.

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In modern longwall mines, shearsers use cutting disks on ranging arms, to slice through all the coal in the seam. Shearsers can have two cutting disks, and work like bacon-slicers in removing the coal from the face.

A shearer cutting a longwall coal face.
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Find out more about coal cutting machines, on site at the Museum in the Coal Interface Gallery and on the underground tour.