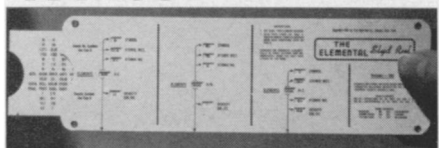


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MINING

Push-Button Miner Mines by Remote Control

See Front Cover

➤ A MACHINE that looks more like a portable parking garage than equipment mines coal without sending men underground.

Joy Manufacturing Co., Zanesville, Ohio, designer and builder of the mechanical giant, calls it the push-button miner.

The push-button miner was designed to remove coal from under a highwall when the overburden, dirt and rock above the coal, is too high to remove economically by normal stripping methods.

To extract coal from under the highwall a remotely controlled train of special cars is sent into the highwall after the coal. The first unit cuts, loads, and dumps coal onto the next succeeding car. Each of the following cars is a conveyor that carries coal its own length toward the highwall entry.

When one entry is mined out, the train pulls back out of the hole into a "mobile parking lot," and the whole push-button miner moves a few feet down the seam to start a new entry. The operator directs the boring operation from a control cab in the mobile parking lot.

The push-button consists of three basic parts: a boring machine, a conveyor train and the mobile parking lot known as the helitrack.

Mounted on crawler assemblies, the boring machine is a continuous miner. Seen on this week's front cover is a twin borer that uses two huge boring arms to cut overlapping circular paths through the coal. This machine cuts a path eight feet high and 13 feet wide, mining coal at the rate of eight to 12 tons a minute.

The helitrack stands 45 feet high, 48 feet wide and 77 feet long. It weighs about 800 tons fully loaded. The boring machine and conveyors are stored on a helical track 1,000 feet long that winds around the core of the steel structure.

Three pairs of crawler tracks carry the weight of the whole machine.

The core of the helitrack houses a workshop with an overhead crane, a power center and two 1,100-foot reels of cable.

• Science News Letter, 84:324 Nov. 23, 1963

Do You Know?

Depleted uranium when alloyed with other metals makes an excellent material for the production of balances and counterweights employed in space vehicles.

Ruthenium, which has long been used as a hardener for platinum and palladium, is now receiving attention as an alloying agent for refractory metals and as a catalyst.

When the first settlers arrived in America, the dog was the Indians' only domestic animal.

• Science News Letter, 84:324 Nov. 23, 1963

Questions

ASTRONOMY—In what ratio are hydroxyl radicals present in interstellar space? p. 323.

CHEMISTRY—Who synthesized "Dewar benzene"? p. 328.

ENTOMOLOGY—What chemical is used to attract the male oriental fruit fly? p. 331.

MEDICINE—How many cases of syphilis were reported in 1962? p. 325.

NATURAL RESOURCES—How much area does permafrost occupy? p. 327.

TECHNOLOGY—What employees have been hardest hit by automation? p. 326.

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