

The exports of Canadian mica during the same period (probably undervalued) were: Cut to size, 50,067 lbs. of a value of \$7,493; edge trimmed, 1,033,983 lbs. of a value of \$128,961; untrimmed, 63,135 lbs. of a value of \$11,885.

During the year 1898-9 Canada exported iron ores as follows:—From Ontario, 248 tons, valued at \$2,550; Quebec, 225 tons of a value of \$596; British Columbia, 1,370 tons of a value of \$1,822.

Of phosphates (apatite) there were sent to Great Britain, 719 tons of a value, \$8,100; to Germany, 122 tons of a value, \$1,100; and to the United States, 20 tons of a value of 90.00.

**The Electro-Magnet in Boring.** The hardened end of a steel bit or chisel broke off in a bore-hole 165 fathoms deep, put down near Ostroppa by the Upper Silesia deep-boring company, Zoellner & Co.; and this obstruction effectually prevented further boring of the hole, because all diamond crowns wore away. After the most varied attempts had failed to remove the piece of steel, the following plan, says the "Colliery Guardian," was hit upon by Engineer Degenhardt, of Gleiwitz. A soft steel bar, 5 feet in length and of 2.7 inches diameter, was covered by a single winding of indiarubber tape, and magnetized by the current of a small dynamo driven by the portable engine employed for the work of boring, and the current was kept constant at about 30 amperes by means of a simple resistance coil. The steel bar was let down into the hole magnetised, and when it reached the bottom the current was switched through the conductor enclosed in the rope for letting down and drawing up. On the first day that this method was employed the piece of steel was drawn up to the surface, so that boring could be resumed.

**Shaft Sinking under Difficulties.**—A paper was read before the Midland Institute of Engineers, at Sheffield, by Mr. James Keen, on the sinking of two shafts through heavily watered strata at Maypole Colliery, Abram, near Wigan, for the Moss Hall Colliery Company. The pit was sunk to reach the celebrated Abram canal, which gives 14,111 cubic feet of 39 candle-power gas, with a large percentage of valuable residuals, and 7 cwt. of good coke per ton. The work has been carried to a complete success by the author, a rich bed of fine canal now being wrought, in a dry mine, the pumps in the shaft dealing with some 90,000 gallons of water per hour, a diminishing quantity.

**A Boring Appliance.**—An under-teamer for boring has been designed by Victor Petit, of Kobylanka, Galicia, in which the side cutters that pivot on pins in the shank are kept pushed outwards in their position for cutting by a wedge pointing upwards being drawn in that direction by a spiral spring. The wedge is, however,

connected by a small vertical rod, sliding in the shank with a lever pivoted thereon, which lever, on the rods being drawn up, strikes against the lower edge of the lining tube, and thus frees the wedge from the influence of the spring, so that the side cutters fall within the diameter of the tube, and may, therefore, be drawn up.

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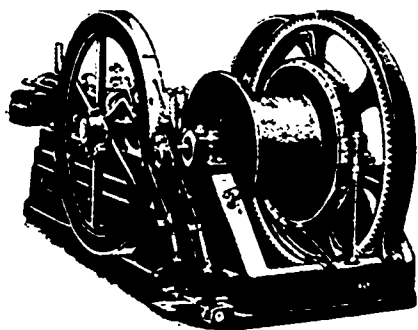
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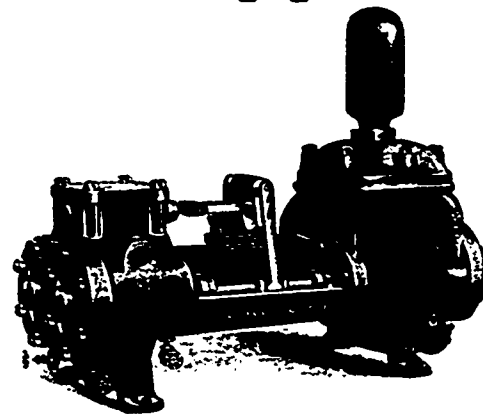
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