

The plan and rope arrangement of the Eston mine, in Yorkshire, is shown in *Fig. 77, Plate 19*. It is distinguished from other endless rope systems in that three branches and one main road are worked by one rope.

From the bottom of three self-acting inclines run three branches, joining at one point a fourth branch which leads to the top of an incline. The endless rope is used to convey the full cars from the three sidings to the main road, and to bring empty cars back again. The rope, shown in the plan by a dotted line, is one inch in diameter, and kept tight by a hanging weight attached to sheave (*S*), which is placed on a tram. At the points (*A*), (*B*), (*C*) there are links or sockets in the rope, by means of which the connection between the rope and the sets of full and empty cars is made. Each of the links has a certain position, to which it is always brought by the engine after having been used in moving a set of cars. The link (*A*) is used for drawing the empty cars to the siding of No. 1 incline and the full cars from both No. 1 and No. 2 siding to the main road (*X Y*). The link (*B*) draws the empty wagons to No. 2 siding, and the link (*C*) to No. 3 incline. When an empty set is required for No. 2 incline, the link (*A*) brings the set to the points at (*P*), from where it is conveyed by the link (*B*). The set consists of twenty cars. Suppose a set of empty cars had to be taken to the siding of No. 1 incline: By means of a short 2-inch steel chain, with a hook at each end, the set is attached to the rope and drawn upon the siding to point (*T*), where the rope is disconnected. Should a full set be ready for removal to (*X Y*), the rope is attached and it is brought back again to its original position. If no wagons are ready, the engine draws the rope back empty. The rope is also frequently used in bringing the full cars on the sidings when they fail to run far enough on the self-acting inclines.

*Endless Rope System
Esion Mines Yorkshire
England*

Fig 77.

