

ground steam engines is hardly practicable, because there is great loss through condensation in the long line of steam pipes, and the water supplied for condensation is not sufficient even for very economical engines. Moreover, the heat set up in the shaft by the long line of steam pipes causes great difficulties, necessitating the supply of large quantities of air for ventilation. It is true that the use of highly super-heated steam permits the working to be carried a few metres deeper; but that limit is soon reached. Engines with pump-trees are out of the question, for depths of 500 metres and upwards, first on account of their great cost and slight useful effect, and secondly owing to the great space they occupy in the shaft and round its mouth. In a *Colliery Guardian* note, from which we extract the above, the writer says that for this purpose compressed air is not to be thought of, so that for an economical pumping plant there is only the choice between electric and hydraulic power transmission; and although at first sight the former appears to offer greater advantages for underground pumps, a closer examination soon reveals several disadvantages. First and foremost an electric plant is far more delicate and difficult to keep in order

than the hydraulic; the high-tension currents afford a constant source of danger to the work-people, that must not be underestimated under the hard conditions of mining; and again, in the event of sudden inrushes of water, the electric pumping plants are irremediably drowned if the motor should become flooded. On the contrary, pumps worked by water under pressure free themselves in such a case, and also start at once, after standing for some time under water, directly the motive water is admitted. Lastly, the collective useful effect is far higher with hydraulic than with electrically worked pumps, as "Gluckauf" proceeds to show in an article founded on lectures by Engineer Fröhlich, of Berlin, arriving at the conclusion that the Kaselowski system is most economical, and the favour with which it is received in the Dortmund district is abundantly proved by the many plants supplied by the Berliner Maschinenbau-Aktiengesellschaft. We cannot agree with our contemporary in the opinion that compressed air is inadmissible for pumping. The great advantages which air offers in respect of safety and ventilation render it, in our opinion, an ideal motive power for use in mines.

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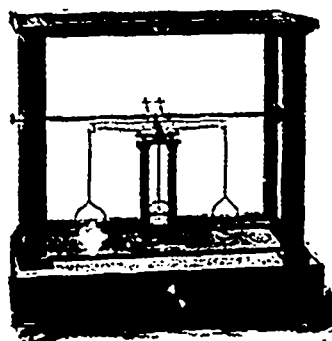
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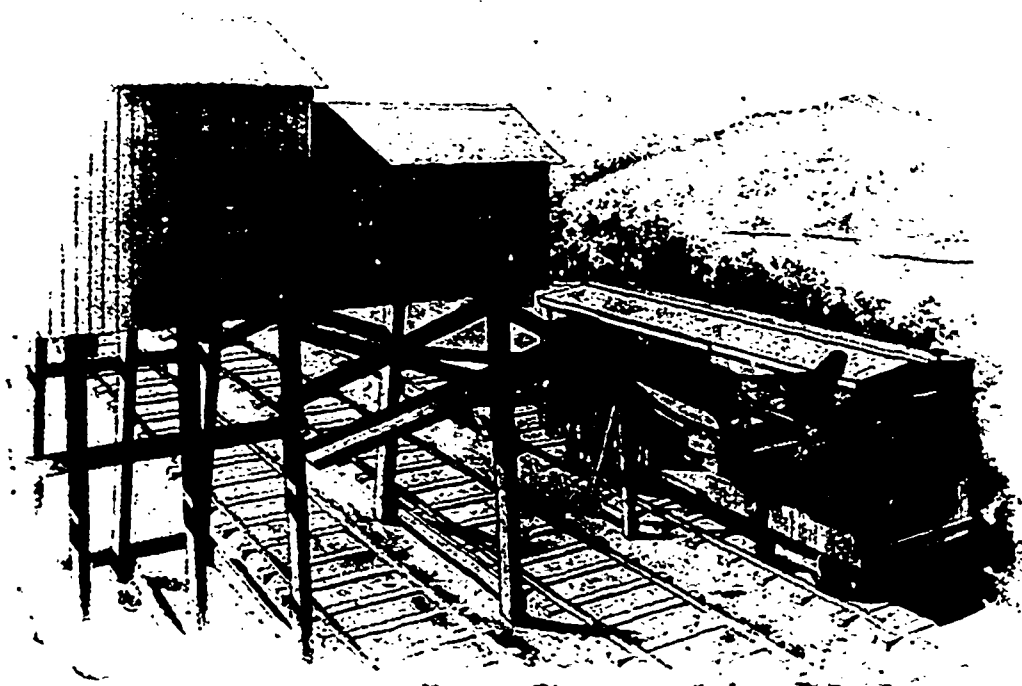
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