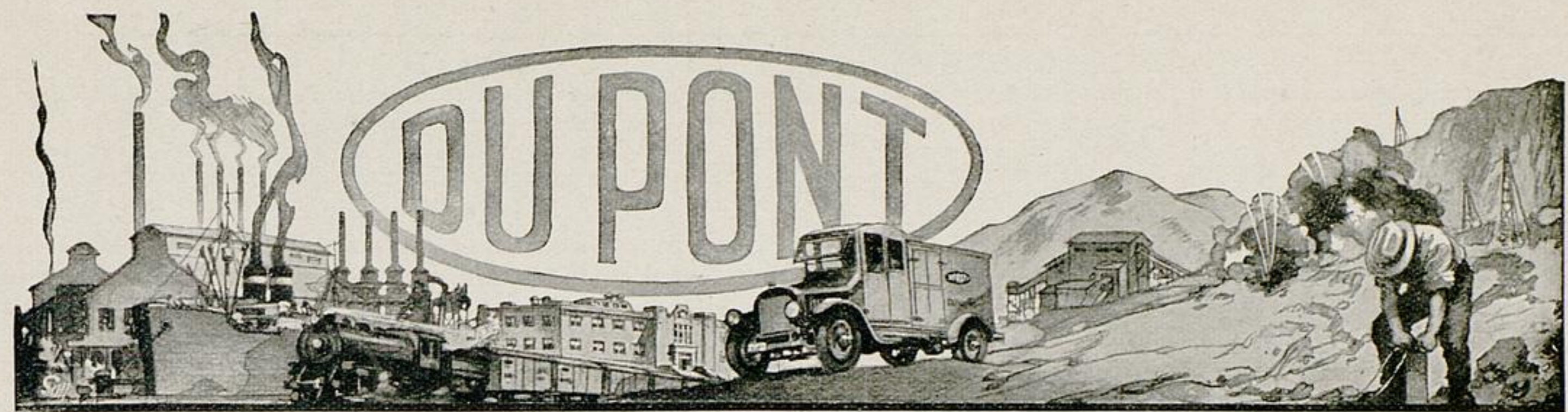


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EXPLOSIVES SERVICE BULLETIN

NUMBER 6

E. I. DU PONT DE NEMOURS & CO., INC.

FEBRUARY, 1924

Getting the Best Results with Permissible Explosives

Some Ways and Means of Producing Lump Coal

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COAL mining in practically every state that is producing coal has had a very hard set-back in the last two years on account of the increasing demand for coal of large dimensions. Consumers are not satisfied with the regular screened sizes of coal but seem to desire the largest size that it is possible to put into the coal bin, without taking into consideration the fact that such large coal must be broken up to get it into the furnace or on to the grate or into the open fire-place. Whether wise or foolish, however, the demand for large sizes of coal is a fact and the operators are therefore faced with the problem of preparing their coal in this shape.

I believe that the chief obstacle today to the production of lump coal is the tendency of a great many miners to overcharge their shots. Now an overcharge of black powder, which many of the older miners have been in the habit of using, may not have any bad effect on the coal. Blasting powder burns with such relative slowness that it is possible for the gases generated by the burning of say three-quarters of the charge to break down the coal before the remainder of the charge has burned. This remaining quarter burns quietly along after the explosion, its gases merely escaping into the air through the opening already made in the coal. With permissible explosives, the case is quite different. They are not converted into gases gradually by ignition proceeding progressively through the charge, but instantaneously, by the shock and the intense heat produced by the explosion of the detonator. Almost the entire volume of gases is generated in one and the same instant and exerts its full force upon the coal with the

initial blow. If this force is greater than necessary to bring down the coal, it can only spend itself by breaking the material up into fine pieces.

A great many miners do not understand this characteristic of permissible explosives and do not know how to charge a hole with permissible so as to bring down the coal without shattering it. Others are careless and indifferent. They do not concern themselves greatly about the condition of the coal and they had rather shoot every hole too hard than do the pick work necessary should an occasional shot hang up.

Whatever the cause of overcharging, it is a very expensive practice for the miner himself, if, as is usually the case, he pays for his own explosives, and it prevents the operator from getting the grade of coal he desires. It would pay the operator to have the foreman spend enough time with each miner in his working place to show him the grade of coal produced by the proper size charge as compared with that produced by heavier charges and to bring him to realize the saving he could make for himself on the cost of his explosive by loading lighter charges. The quantity of explosive to use in each shot should be determined by careful judgment, not by haphazard guess work. Examination of the shots of the night before will show the miner whether he used too much explosive and guide him in gauging his charges more accurately.

Good results in blasting coal also depend upon the proper placing of the bore holes. A good many miners in the mines where undercutting machines are used make the mistake of drilling the holes too close to the rib. They would get the coal down in better shape if