FIGHTING THE COAL POWDER MADE AT THE LOADING WITH KsS MACHINE OUT OF DEPOSIT

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„Abstract" The coal powder is made at the spreading of the coal with the vehicles for loading, unloading, crushing and transport on the transporting bands. The paper presents technical solution of reducing the coal powder made at the loading of coal from deposit by using the water as an agent for retaining.

1. Introduction

A coal deposit represents a source of dust during its whole life duration, namely of the moment in which a land surface began to be perturbed until the whole surface has been covered again by vegetation.

From the point of view of impact on environment, the duration of lifetime for a coal deposit comprises the period of exploitation cumulated with the rehabilitation.[1]

In case of lignite deposits, as all the work equipments are electrical, the only characteristic polluter is represented by the coal dust, the general polluters being not added anymore as in other situations, the polluters generated by the engines of extracts and transport equipments. From the point of distribution the coal is taken over by bands and deposed with the help of a combined machine deposing -loading KsS (fig.1).

Fig.1. the deposing of coal in the deposit with the car combined of deposing/loading type KsS

2. The fighting of dust formed at machine KsS

In order to prevent the pollution of the inhabited area, the dust formed right at the source must be fought. The pulverization with mist of dust cloud formed during the operations of loading of lignite can be considered as being timely. By using the douses of water pulverization at pressures higher than 20-30 atm. rise the efficiency of collecting (holding back) of dust out of suspension. The humidity of lignite rises as well very little as a result of the use of water pulverization at the pressures mentioned (no more than 0, 1%). The douses that can be used must distribute a mist jet of water both conically and in plan. The necessary equipments and subensembles for the realization of dust humecting made at the machine for coal loading-unloading coal type KsS can be followed in fig.2. The water basin must have a capacity of at least 5 cube meters. This will be placed onto the equipment and filled periodically with water from the network.

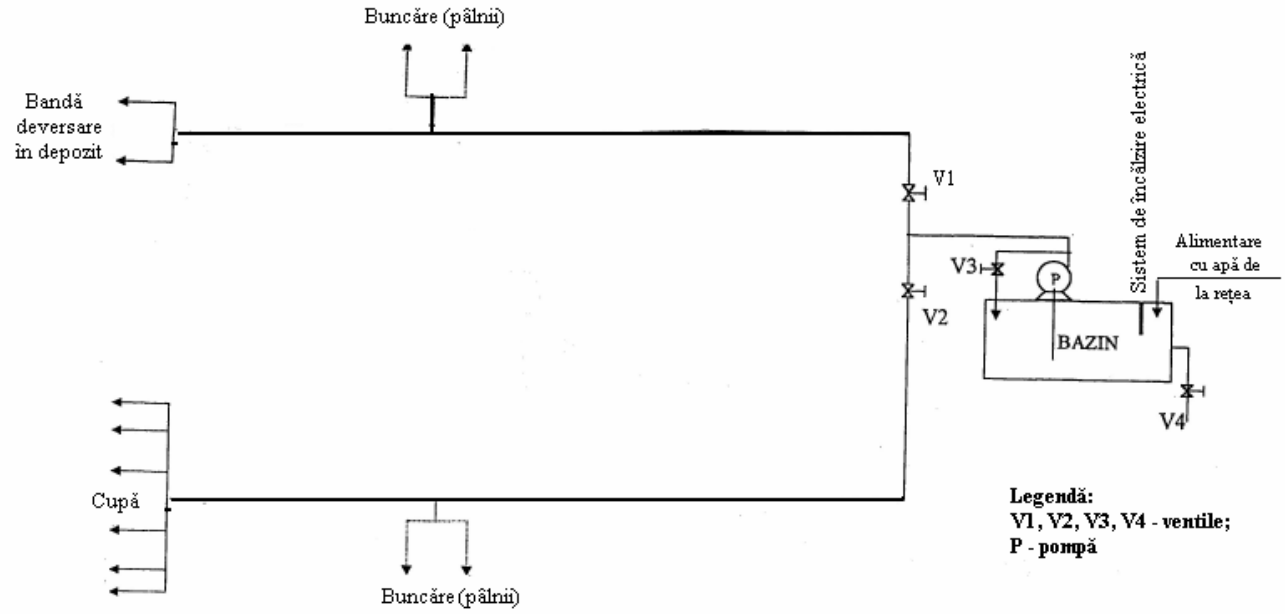

Fig. 2. The scheme of feeding the douses of pulverization at machine KsS.

The basin will be constructed from plate and shall have an orifice of feeding and another one for emptying through valve V4. In order to prevent the phenomenon of freezing during the winter, the basin shall be endowed with an electric heating system. The water pump shall be set up on the basin, with a column of aspiration with sorbs.

The pump shall be commanded electrically from two coffers (the closest) of two equipments which ensures the functioning both on loading the formed dust and unloading of machine KsS. The separation of water circuits used for aspersion (both at loading and unloading) will be made by means of valves V1 and V2. The valve V3 ensures the emptying in the basin of water from the network of feeding of douses, on the condition to ensure to the entire system a corresponding path for the free running of water towards the collecting basin. The location and orientation scheme of douses (2 with plan jet type D and 4 with conic jet type or C) at the machine cup KsS can be followed in fig.3

At the coal bunker (the funnels) of the machine 2 douses with jet B or C and 2 with jet plan type A thus placed will be used to create mist above the unloading area (impact) on the band (impact) on the band, with a view to an efficient humecting of the existent dust.[2]

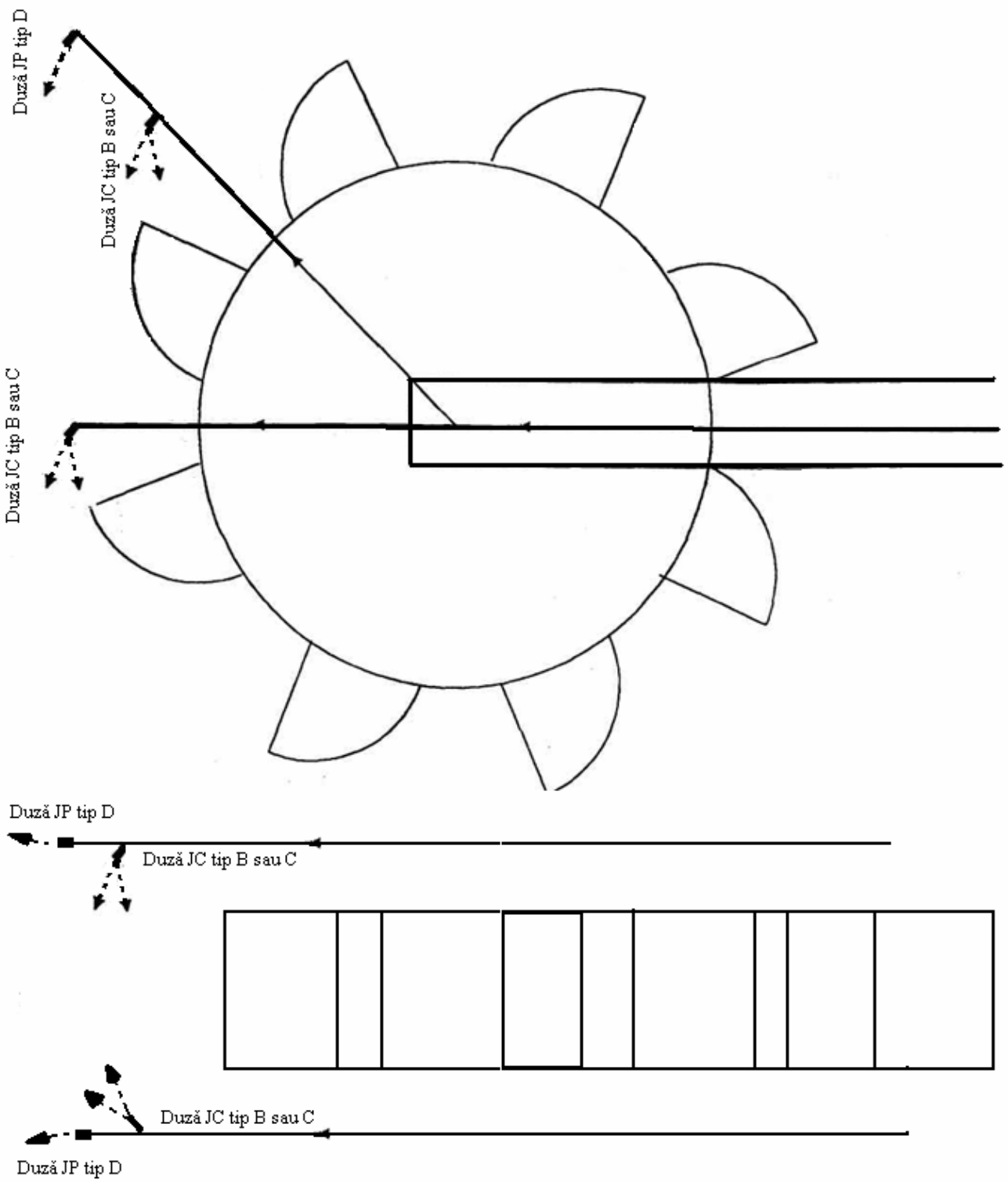

Fig. 3. The scheme to locate the douses at the cup of machine KsS.

To ensure a higher efficiency of the dust humectation different pressured pumps with pressures are used of at least 30 atm.

3. Other solutions and measures to reduce the coal powder and noise

- to prevent the deposing of dust (mud) on public roads by the coal conveyer belts wheels must be washed (whenever necessary) and to be covered by tarpaulin;
- the making of green curtains (plantation of trees having different growth height);
- the covering of conveyer belts from the coal circuit;
- the organization of some ballasting/stoning of all industrial roads for the minimization of dust emissions;
- the placement of irony walls with panels, with a height of 10 meters, in the areas with coal deposits an loading into wagons, which stops the dust dispersion and foreseen in the upper side of the panels with installments of realizing the curtains of mist with water.

4. Conclusions

- a coal deposit represents a source of dust for its lifetime
- in the case of lignite deposits, as all the work equipments are electrical, the only characteristic polluter is represented by the coal dust
- to prevent the pollution of the inhabited area, the dust that appeared must be fought from the source itself
- by using the water pulverization at the mentioned pressures the humidity of the lignite rises very little

5. BIBLIOGRAPHY

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