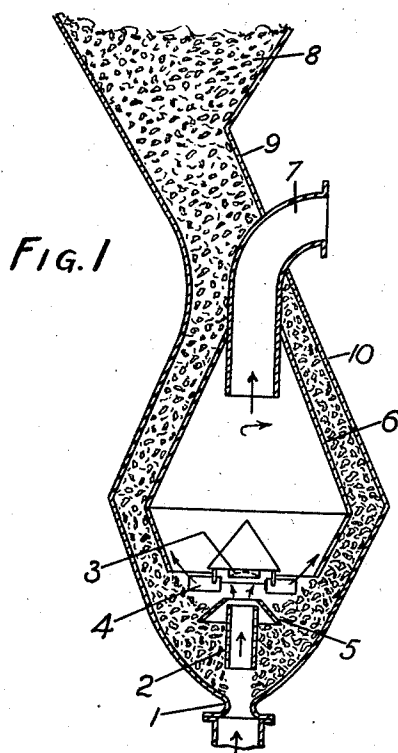
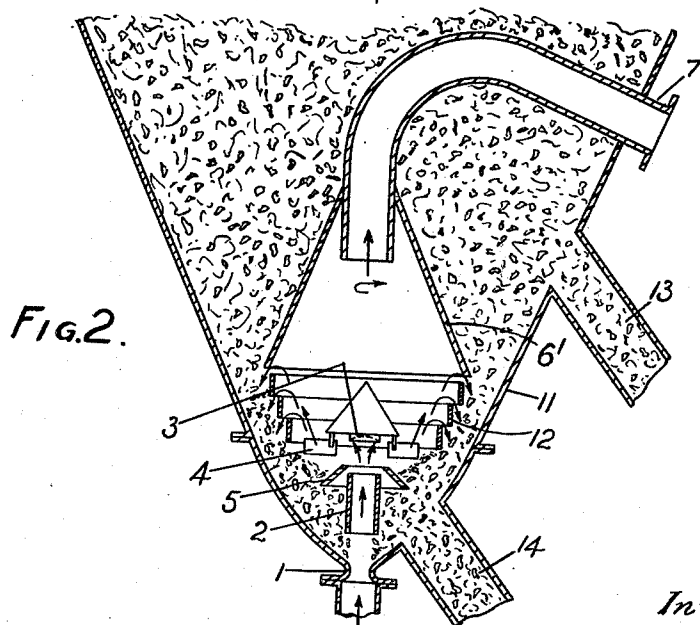


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JET IMPACT PULVERIZER
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JET IMPACT PULVERIZER

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1 Claim. (Cl. 83-46)

This invention relates to the pulverization of coal and similar material by jet impact, and its object is to obtain an apparatus which will occupy the smallest possible space, so that it can conveniently be used, for instance for feeding coal dust to the furnace of a steam boat or railway engine where economy of space is essential.

This object is achieved according to the invention by building the pulverizer direct into the bunker in which the raw materials are stored, so that the bunker will serve as the pulverizing vessel. A jet impact pulverizer of known type is suitably modified for combination with a bunker.

Fig. 1 of the accompanying drawing represents a sectional view of a pulverizer according to the invention, and

Fig. 2 is a sectional view of a modified form of the pulverizer.

The pulverizer comprises an upright, funnel-shaped bunker having at the bottom a jet nozzle 1 through which an air blast is admitted for blowing materials stored in the bunker through a mixing pipe 2 against an impact member 3. According to the invention the latter is covered by a double-conical hood 6 over which the materials are fed into the bunker, the hood forming between it and the bunker wall an annular passage through which the materials descend for uniform distribution about the mixing tube 2 and the jet nozzle. On a level with the impact member the feed passage is of substantially uniform cross-section, the lower hood portion being substantially parallel to the adjacent bunker wall. Above the level of the impact member the feed passage expands in upward direction towards the actual bunker space. This arrangement will ensure a regular and uninterrupted feed of material to the nozzle. The materials are broken up and scattered by the impact member, and the mixture of air and comminuted materials is deflected by tangentially disposed vanes 4 and set in a whirling motion. The coarser materials drop back into the bunker for renewed treatment, and the dust-laden air rises through the hood and is discharged through a pipe 7 which leads through the bunker space and passes out through the funnel wall. A conical screen 5 is provided which, when the air jet is interrupted and the mixing tube 2 lowered, prevents the materials from falling through the tube.

In the arrangement shown in Fig. 1 the walls 10 of the upper portion of the bunker converge towards a neck 9 through which the materials are fed into the bunker from a hopper 8.

Fig. 2 shows a bunker of different shape provided with a pipe. This arrangement is particu-

larly suitable for use in steam boats and railway engines where economy of space is essential. The vessel may have a pipe 13 through which unpulverized coal may be fed into a furnace direct from the bunker, while coal dust is supplied through the pipe 7.

An additional pipe 14 may be provided near the jet nozzle for the spontaneous discharge from the vessel of bits of iron, stones and other heavy extraneous substances.

When moist materials are being treated by means of a hot air blast, it is of importance for an effective drying of the raw materials to provide for a ready escape of vapours. For this purpose the lower, funnel-shaped portion of the hood 6' in Fig. 2 is louvred, so that while the raw materials are prevented from entering the hood, the vapours can enter the same through the louvres and escape together with the coal dust. In the arrangement shown in Fig. 2, the louvred hood portion is built up from spaced and staggered, coaxial rings 12 of different diameters. It is evident that coarse particles thrown by the whirling air current against the sides of the hood, will be able to drop through the spaces between the rings and mix with the wet materials in the feeding passage. As these particles are heated by the air, heat exchange will take place, and the drying of the raw materials will thus be promoted. There will also be heat exchange between the pipe 7 and the stored material for drying the latter.

The discharge pipes 13 and 14 and the louvred hood may also be employed in the form of the device shown in Fig. 1, and other modifications may be resorted to within the scope of the invention as defined by the appended claim.

I claim:

The combination of a funnel-shaped coal or like bunker, a nozzle for blowing a gaseous fluid into said bunker through the lower end thereof, an impact member arranged above the nozzle in the path of the fluid and of the material carried away with it, a double conical hood consisting of an upper portion and a lower portion arranged to cover said impact member and to receive the fluid and the resulting dust, said bunker and hood being designed and constructed to form between them an annular feed passage which is of substantially uniform cross-section on a level with the impact member and which expands in upward direction above said level, and a pipe leading from the top of the hood through the bunker space to the outside for discharging from the bunker the fluid and the dust, said lower portion of the hood being built up from spaced and staggered rings.

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