Oct. 10, 1939. J. A. ERICKSON 2,175,259

SPRAYING HOOD

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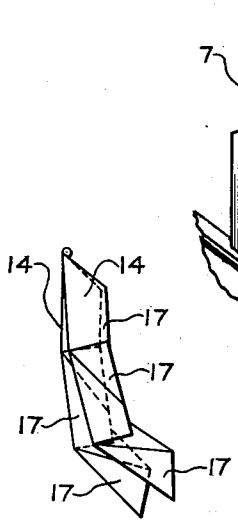


Fig 6

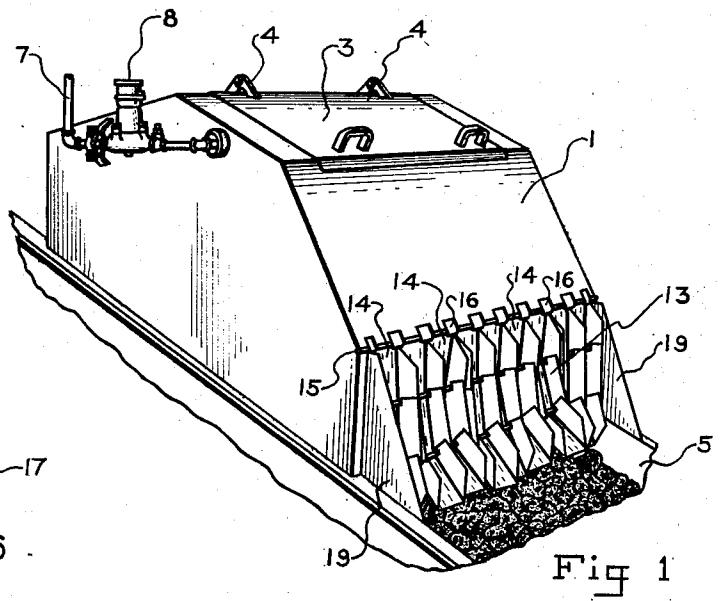


Fig 1

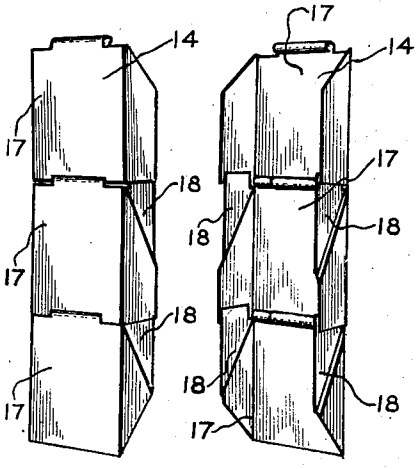


Fig 3

Fig 4

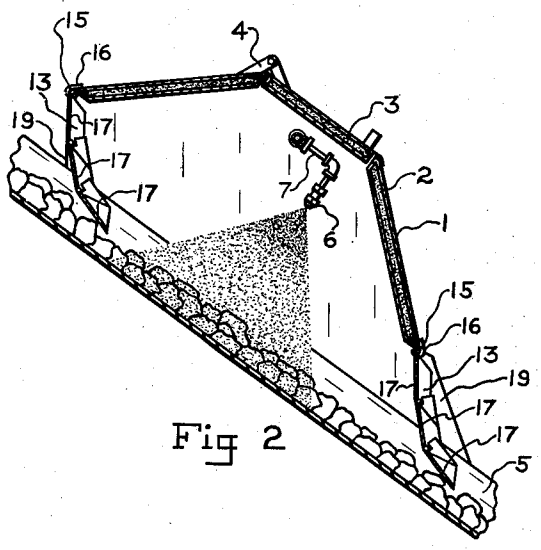


Fig 2

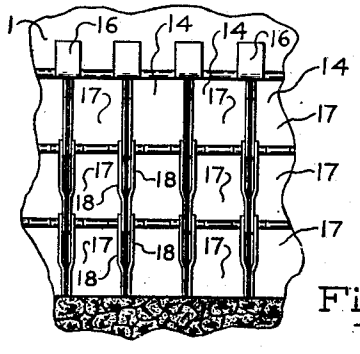


Fig 5

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SPRAYING HOOD

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6 Claims. (Cl. 91—60)

This invention relates to spraying hoods and particularly to curtains employed to confine spraying material within hoods beneath which material to be sprayed is moved.

Hoods for spraying oil onto coal for dust proofing and the like heretofore have been provided at the entering and leaving end with a flexible curtain resting on the top of the coal as it passed beneath the hood to prevent the escape of oil fog, which not only constituted a waste of material but also collected with coal dust on walls of the building in which the spraying hood was housed, creating a dangerous fire hazard. The flexible curtains heretofore used have been made of canvas or canvas and rubber belting. However, the life of these curtains has been short due to the fact that the bottom dragging over the coal passing under the hood was quickly worn. Also, the curtains became soaked with oil, creating another fire hazard. The present invention overcomes the prior difficulties experienced with curtains for spraying hoods by providing a metallic curtain having a plurality of rigid sections pivoted together, the curtain being of such a construction that it will yield to the large pieces of coal passing beneath it without breaking the oil confining seal.

An object of the invention is to provide a metallic curtain for spraying hoods.

Another object of the invention is to provide a curtain for spraying hoods comprised of a plurality of chains of rigid sections disposed side by side, laterally disposed sections being of sufficient depth and slidable one against the other to mutually maintain a seal regardless of relative movement due to the movement of coal passing therebeneath.

Still another object of the invention is to provide a flexible curtain comprised of a plurality of rigid sections connected together in chain-like fashion and disposed side by side.

These and other objects will be apparent from the following specification when taken with the accompanying drawing, in which:

Fig. 1 is a perspective view of a hood equipped with curtains according to the present invention showing their relation to coal being conducted by an inclined chute,

Fig. 2 is a vertical section taken longitudinally through the structure of Fig. 1,

Fig. 3 is a rear view in perspective of a single chain-like portion of the curtain structure,

Fig. 4 is a front view in perspective of the structure illustrated in Fig. 3,

Fig. 5 is a front elevation of the flexible curtain as disclosed in Fig. 1, and

Fig. 6 is a side elevation showing two chain-like portions of the flexible curtain displaced relatively in the direction of movement of the coal along the conducting chute to illustrate the sealing therebetween.

Referring particularly to Fig. 1 of the drawing, the reference character 1 indicates a hood, preferably of sheet metal construction, having double walls between which insulation 2 is disposed, as shown particularly in Fig. 2. The hood 1 is provided with an inspection door 3 swung on hinges 4. The hood 1 is supported in some suitable manner over a coal chute 5 inclined to the horizontal. It will be understood that the coal chute 5 is disclosed only as one example of a structure for conducting coal beneath the hood 1 and that other forms of conducting structures may be employed, such as horizontal or inclined belt conveyors or the like. Within the hood 1 is disposed a spraying nozzle 6 connected by a pipe 7 to a suitable source of heated oil under pressure for treating the coal being conducted beneath the hood by the chute 5. The pipe 7 has connected in series therewith a meter 8 for measuring the amount of oil which is sprayed onto the coal.

The foregoing structure is conventional as far as the present invention is concerned. The present invention relates to the particular form of curtain employed at the entrance and exit sides of the hood 1. At the entrance and exit sides of the hood 1 are arranged curtains 13 which comprise the present invention and which are for the purpose of confining within the hood 1 the oil fog in suspension in the air within the hood 1, and yet at the same time permit the passage along the chute 5 and beneath the hood 1 of coal having a highly irregular surface outline. As hereinabove explained, the former canvas or belting curtains employed to confine oil fog within spraying hoods were not satisfactory because of their short life and because of the fact that they became oil soaked and thus highly inflammable. A rigid curtain of metal, for instance, would not be satisfactory because of the fact that the irregular surface of the coal passing beneath the hood would raise the curtain enough to permit the escape of oil fog from within the hood. According to the present invention, the curtains 13 are made of sheet metal sections connected together so as to be entirely flexible.

Specifically, the curtains 13 comprise a plu-

rality of depending chain-like portions 14, shown separately in Figs. 3 and 4, pivoted on rods 15 secured to the upper entering and leaving edges of the hood 1 by tabs 16. Each of the portions 14 is comprised of a plurality of sheet metal sections 17 pivoted or hinged together. As shown particularly in Figs. 3, 4 and 5, each section 17 is of sheet metal and channel-shaped in cross-section. Each of the flanges of the sections 17, except the upper one, of each chain-like portion 14 is provided with offset sections 18. The purpose of the offset sections 18 is to receive the flange from an adjoining section of the same chain-like portion when the adjoining sections pivot relatively to one another, in order to maintain a substantially continuous surface along each side of each chain-like portion 14. As shown particularly in Figs. 1 and 5, each of the depending chain-like portions 14 is in contact, throughout its length, with the chain-like portion 14 laterally adjoining. As the chain-like portions 14 pivot about the rod 15 and as the sections 17 of each chain-like portion 14 pivot relatively to one another, the continuous surfaces provided by the flanges of the sections 17 slide against one another, maintaining a seal between the interior of the hood 1 and the outside thereof. It will be understood that the effective depth of the channel-shaped sections 17 created by the flanges thereof results in the permitting of a considerable relative movement between the chain-like portions 14 and between adjacent sections of the same chain-like portions 14 without destroying the oil fog confining effect of the curtains 13. In Fig. 6 the overlapping of the flanges of the sections 17 is illustrated. In order to provide an effective seal at each side of the curtains 13, the chute 5 may be provided with wings 19 at the sides of the entering and leaving ends of the hood 1.

While the invention has been disclosed as applied to a hood for spraying heated oil on coal, it will be understood that the curtains comprising the invention may be employed in other relations where a flexible wear-resisting curtain is desired.

Having thus described my invention, what I desire to secure by Letters Patent and claim is:

1. In a spraying hood, in association with structure for conducting material to be sprayed by said hood in operative relation thereto, a flexible curtain for engaging with the surfaces of said material as it is conducted by said hood for confining within said hood the substance sprayed against said material, said curtain comprising a plurality of depending laterally contacting portions, each of said portions comprising a plurality of hinged sections.

2. In a spraying hood, in association with structure for conducting material to be sprayed by said hood in operative relation thereto, a flexible curtain for engaging with the surfaces of said material as it is conducted by said hood for confining within said hood the substance sprayed against said material, said curtain comprising a plurality of depending laterally contacting portions, each of said portions comprising a plurality of hinged sections, each of said hinged sections having a substantial effective depth to provide adjacent sections with a relatively large area of surface contact, whereby adjacent sections may pivot relatively to one another in the direction of movement of said material and still comprise a confining curtain.

3. In a spraying hood, in association with structure for conducting material to be sprayed by said hood in operative relation thereto, a flexible curtain for engaging with the surfaces of said material as it is conducted by said hood for confining within said hood the substance sprayed against said material, said curtain comprising a plurality of depending laterally contacting portions, each of said portions comprising a plurality of hinged sections, each of said hinged sections being a sheet metal substantially channel shaped member, each having flanges and a connecting web, the connecting webs being hinged together in chain-like fashion, the flanges of sections in the same portion overlapping end of adjacent portions being in surface contact.

4. The invention as defined in claim 3 wherein said sheet metal flanges have offset portions to provide a space to receive the flange of an adjacent section in the same curtain portion to permit the major part of the flanges at each side of a curtain portion to be disposed in substantially single planes.

5. A flexible curtain comprising a plurality of depending chain-like portions, each of said portions comprising a plurality of pivoted sections, each of said pivoted sections having a substantial effective depth whereby adjacent sections of adjacent portions may pivot relatively to one another and still comprise a confining curtain.

6. A curtain for sealing a space immediately adjacent a flow of material of irregular surface, comprising a series of juxtaposed members, means supporting said members for relative movement along parallel planes under the influence of said flow, said members being of sufficient depth to remain in edgewise overlapping relation with one another during all normal relative movement.

JOHN A. ERICKSON.