Oct. 21, 1930. A. J. LOCKHART 1,778,979

VENTILATING CURTAIN FOR MINES

Filed Nov. 28, 1927

Fig. 1

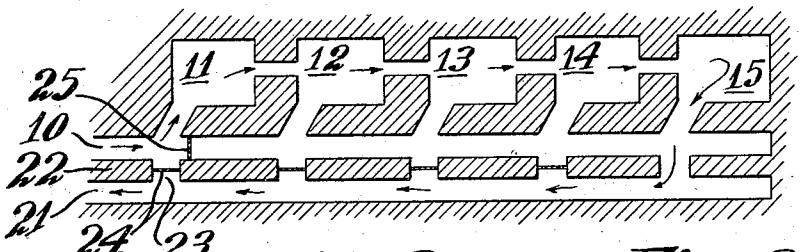


Fig. 2

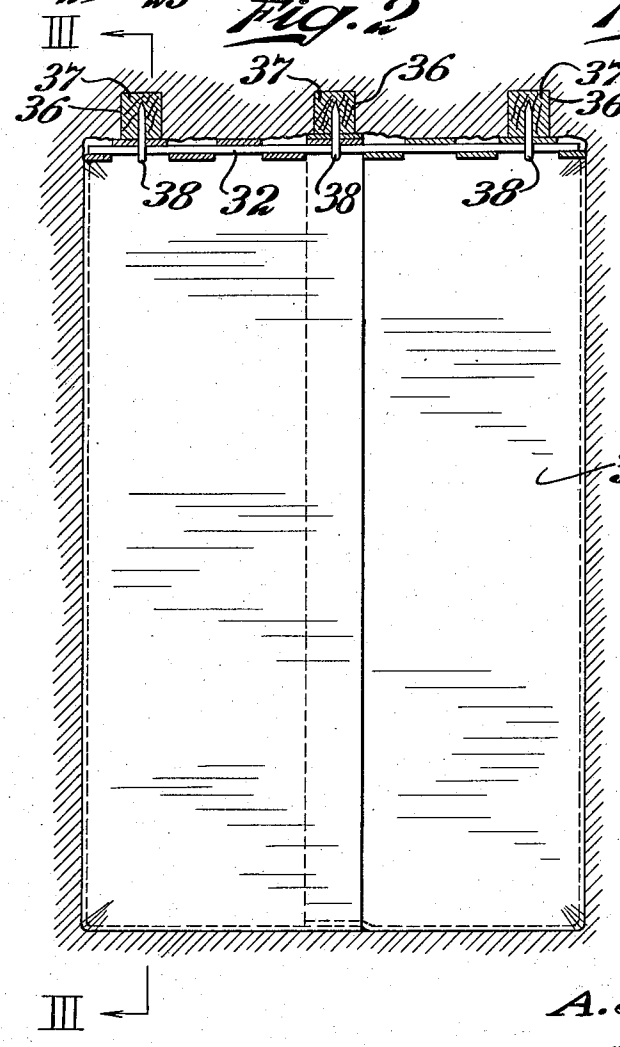
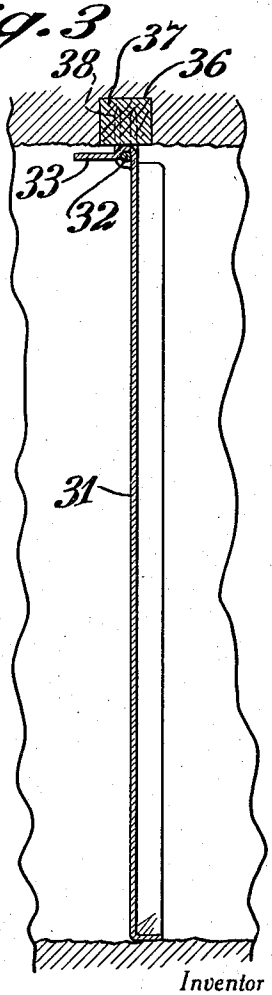


Fig. 3



Inventor

A. J. Lockhart

By

Attorney

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UNITED STATES PATENT OFFICE

ANDY J. LOCKHART, OF NORTH BIRMINGHAM, ALABAMA

VENTILATING CURTAIN FOR MINES

Application filed November 28, 1927. Serial No. 236,355.

My invention relates to the ventilation of mines, more particularly to the curtaining of the air passages of mines, and has for its object the provision of a method of curtaining mines whereby the curtain may be put in place with a minimum of labor and material and may be used over and over in different locations.

A further object of my invention is to provide a curtain to be employed in ventilating mines together with simple and effective means for securing the curtain in position.

A more particular object of my invention is to provide a fabric curtain for use in mines and embodying a flexible supporting and reinforcing member in the fabric, said reinforcing member to be attached to the walls or roof of the mine workings.

A still further object of my invention is to provide a fabric curtain for use in ventilating mines and embodying a flexible, supporting and reinforcing member extending along near the edge of the fabric, together with means for attaching the supporting member to the wall or roof of the mine workings.

As is well understood in the art to which my invention relates, as the work of removing coal or ore from a mine proceeds, and the workings are extended farther and farther into the earth, it is necessary that means be provided for circulating fresh air through the workings for the workmen and to clear the workings of gas. In order to accomplish this, air is usually pumped, or forced by blowers, inwardly through the drift or tunnel where the work is being done, the air returning by way of an air chute, or passage extending alongside the drift or tunnel. As the work proceeds, the successive openings between the drift or tunnel and the return air chute are usually curtained off to prevent a short circuit of the air before it reaches the inner workings of the mine. Furthermore, it may be necessary to curtain the main air passage in order to divert the air into the rooms which are being worked. It is this curtaining of the passages with which my invention is particularly related.

Heretofore, in curtaining off the workings of a mine, in order to divert the air current therethrough, it has been the custom to first provide a frame work of timber and then nail the curtain to the frame work. This method of doing the work has been objectionable on account of the amount of material necessary to carry on the work, and also on account of the fact that the frame work could not make a tight joint with the rough surface of the openings in a mine. Furthermore, a curtain so used, could never be used again, due to the fact that it could not be removed without tearing or without taking down the frame work.

These and other objections are overcome by means of my invention, wherein a fabric curtain is provided having embodied therein a flexible, supporting, reinforcing member, together with means for attaching the curtain by the reinforcing member, directly to the walls or roof of the mine workings.

In order that my invention may be more clearly understood, reference will be had to the accompanying drawing, forming a part of this application, wherein

Fig. 1 is a sectional plan view of a mine, showing the workings and the air passages therein and provided with curtains in accordance with my invention;

Fig. 2 is a front elevation partly in section, showing my improved curtains in place; and

Fig. 3 is a sectional view taken along the line III—III of Fig. 2.

Referring now to the drawing I show, in Fig. 1, a drift or tunnel 10, leading to the inner workings of the mine. Leading off from the drift, or tunnel, 10 are a plurality of rooms, 11 to 15 inclusive, from which the coal or ore is successively removed. In order to ventilate the workings, air is forced through the drift or tunnel 10 in the direction shown by the arrows, returning by way of an air chute or passage 21, which is separated from the drift 10 by a wall 22. In order to provide communication between the drift or tunnel 10 and the air chute 21, a plurality of openings, such as 23, are provided in the wall 22.

As the work of removing the coal or ore from the rooms 11 to 15 proceeds, the drift

10 and air chute 21 are extended further into the earth, and the openings 23 are successively curtained off as at 24, in order that the air shall circulate through the entire workings. It may also be necessary to provide a curtain across the drift 10, as at 25, in order to divert the air into a room, such as 12. Where it has heretofore been the practice to provide a frame for each successive opening, and a fabric curtain nailed to the frame, I provide, as may best be seen in Figs. 2 and 3, a curtain which may comprise one or more fabric strips 31, each having a reinforcing member, such as 32, embodied in the fabric of the strip and extending along near one edge thereof. The reinforcing member 32 is flexible, such as a wire, and is of sufficient strength to support the curtain and flexible enough to lie snugly along the rough surfaces of the mine working, so as to prevent air leaks thereby. In the example shown, the reinforcing member 32 is threaded through the fabric alternately from one side to the other, but it will be apparent that it may be attached in many ways, the essential thing being that it forms a sturdy support for the curtain. Preferably, the reinforcing member 32 is so inserted as to leave a free edge or flap 33 which may serve as a calking or packing means to prevent air leakage. Where more than one strip 31 is employed, they are arranged so as to overlap and thus prevent air leaks by the strips.

In order to secure the curtain in place, I drill holes, such as 36—36 at suitable intervals, preferably in the roof of the mine workings, where the curtain is to be placed and drive into each of the holes 36 a wooden plug 37, the plugs tightly engaging the walls so as not to become displaced or pull out. Into the plugs 37 are driven staples 38 which straddle the reinforcing member 32 and thus serve to draw the flexible reinforcing member tightly against the walls of the mine workings.

As may be seen in Fig. 2, the curtain is so put in position that its sides lie snugly against the walls of the opening and is made long enough to touch the floor of the workings. The weight of the curtain is usually sufficient to withstand any pressure difference between the two sides. It will be apparent, however, that if necessary, the curtain may be similarly secured along its sides.

Should it be desired to take down my improved curtain and use it in some other location, it is only necessary to pull the staples 38 from the plugs 37, whereupon the curtain may be taken down without damage and used again.

From the foregoing it will be appreciated that I have devised a system of curtaining the workings of a mine, which greatly reduces the material and labor of such operation, provides a tighter seal against the undesired flow of air current, and provides a curtain which may be put up and taken down without damage thereto.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. In a mine having an opening to be curtained, a fabric curtain having a flexible reinforcing wire threaded through the fabric and extending along near an edge thereof, a plurality of supporting plugs embedded in the roof of the opening substantially flush with the surface of the roof, and staples straddling the wire, and driven into the plugs to draw the fabric tightly against the roof.

2. In a mine having an opening to be curtained, the combination of a curtain comprising a plurality of strips of fabric, a flexible reinforcing wire threaded through each of the strips and extending along near an edge thereof, a plurality of supporting plugs embedded in the roof of the opening substantially flush with the surface of the roof, means for securing the strips in overlapped relation to the plugs and with the fabric drawn up against the roof, and with the outward marginal edges of the strips lying against the side walls of the opening.

3. In a mine having an opening to be curtained, a curtain comprising a plurality of strips of fabric each of sufficient length to extend from the roof of the opening to the floor thereof, a flexible reinforcing wire threaded through each strip of the fabric and extending across said strip near the upper edge thereof, a plurality of supporting plugs embedded in the roof of the opening substantially flush with the surface of the roof, and supporting members coacting with the reinforcoing wire to hang the strips in overlapped relation and with the outward marginal edges of the curtain lying against the side walls of the opening and with the fabric drawn tightly up against the roof.

In testimony whereof I, ANDY J. LOCKHART, affix my signature.

ANDY J. LOCKHART.