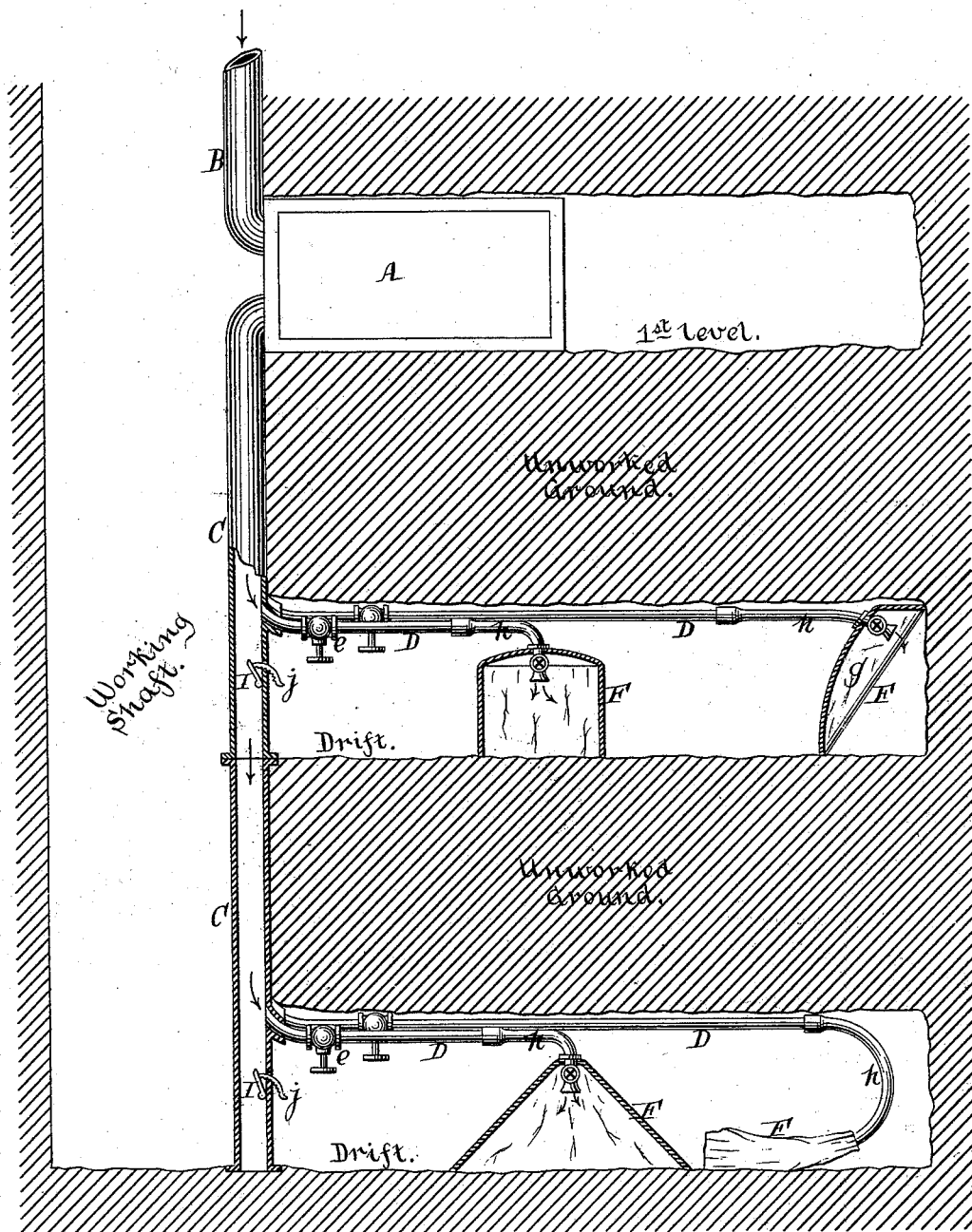


J. L. & D. H. COLES.  
Apparatus for Cooling Mines

No. 219,222.

Patented Sept. 2, 1879.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN APPARATUS FOR COOLING MINES.

Specification forming part of Letters Patent No. 219,222, dated September 2, 1879; application filed June 5, 1879.

### *To all whom it may concern:*

Be it known that we, JOHN L. COLES and DAVID H. COLES, both of the city, county, and State of New York, have invented a new and useful Improvement in Cooling Mines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, which represents a mine in vertical section furnished with our invention.

Our invention consists in an apparatus for cooling mines, in which are combined a cold-air main, one or more flexible service-pipes leading from the main, and a portable tent or tents connected with the service pipe or pipes within the mine, all of which will be fully hereinafter described in detail.

In carrying out our invention we put up in the first level of the mine, near the working-shaft, a refrigerator, A, suitable for cooling air, and connect to the inlet-orifice of this refrigerator a pipe, B, extending to a point above ground, for supplying the same with surface air. We also connect to the refrigerator—namely, to its outlet-orifice—what we term a "cold-air main," C, which we carry down into or through the working-shaft and close at the lower end. This cold-air main C, as well as the air-supply pipe B, is intended to be placed in one corner of the working-shaft, like the pipes of the pumps connected with the mine, to avoid obstruction.

In the respective drifts of the mine, two of which are shown in the drawing, we arrange flexible or flexibly-jointed service-pipes D, (one or more,) and connect one end of each of these pipes to the cold-air main C, providing the same with a suitable cut-off valve, e, while at their opposite ends we connect each of the service-pipes to a tent, F, using a suitable coupling device for this purpose.

When more than one of the service-pipes D is used they are made of different lengths, thus terminating at different portions of the drift, and allowing the tents F to be put up at suitable distances apart from each other.

The tents F are made of oil-cloth or any

other material impervious to air and water, and may be constructed in a variety of ways, according to location and the uses to which they are to be put, the same being portable.

If required, a tent may be built at the end or either side of a drift, and in that case we simply arrange a curtain at that point, as at g, at the same time coupling this curtain with a service-pipe.

To facilitate the coupling of the tents F with the service-pipes D, we provide these pipes with a flexible section, h, at their inner ends, the remaining portion of the pipes being of metal. If desired, these service-pipes may be made flexible throughout their whole lengths.

In this example we have shown one service-pipe, D, to each of the tents F; but, if desired, two tents may be combined with a single service-pipe.

At a point beneath that at which the service-pipes D are connected to the cold-air main C, we provide the latter with a damper, I, arranged to be set by means of a rack, j.

If surface air is admitted to the refrigerator A, such air becomes rarefied, and thence passes downward into the main C, and, entering the service-pipes D, is supplied to the tents. These tents are thus kept cool, so that, for instance, workmen are enabled to perform their labors therein with comfort, and inasmuch as the cold air is confined to the tents, a comparatively small volume of air is needed to produce the desired effect.

A greater or less quantity of cold air may be supplied to the service-pipes in a drift by adjusting the damper I accordingly.

What we claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for cooling mines, the combination of a cold-air main, one or more flexible service-pipes leading from the cold-air main, and a portable tent or tents connected with the service pipe or pipes within the mine, all substantially as and for the purposes set forth.

2. In an apparatus for cooling mines, the

combination, with a refrigerator, of a cold-air main emanating from such refrigerator, one or more flexible service-pipes leading from the main, and a portable tent or tents connected with the service pipe or pipes within the mine, all constructed substantially as and for the purpose described.

In testimony that we claim the foregoing

we have hereunto set our hands and seals this 3d day of June, 1879.

JOHN L. COLES. [L. S.]  
DAVID H. COLES. [L. S.]

Witnesses:

W. HAUFF,  
CHAS. WAHLERS.