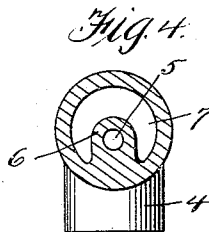
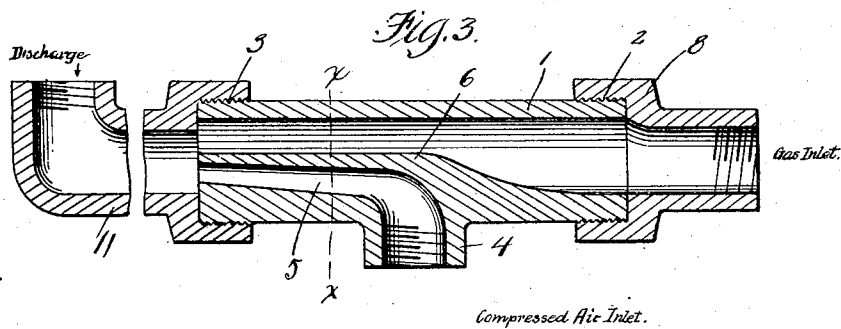
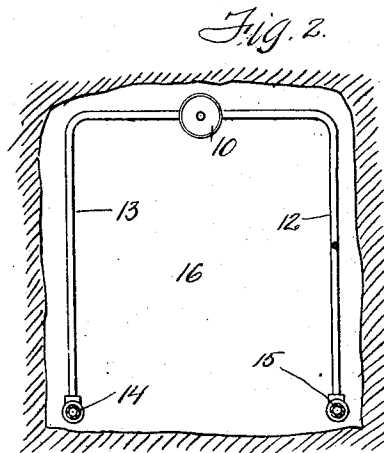
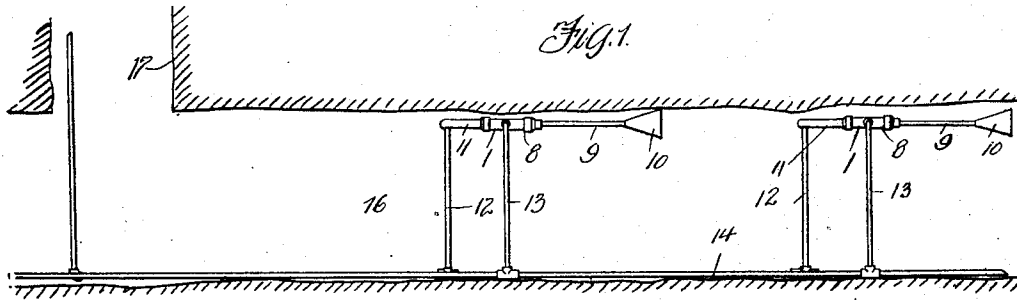


J. C. STIRLING.
 APPARATUS FOR REMOVING GASES AND FOUL AIR FROM MINES.
 APPLICATION FILED APR. 22, 1909.

932,916.

Patented Aug. 31, 1909.



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APPARATUS FOR REMOVING GASES AND FOUL AIR FROM MINES.

932,916.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed April 22, 1909. Serial No. 491,457.

To all whom it may concern:

Be it known that I, JOSEPH C. STIRLING, a citizen of the United States of America, residing at Bakerstown, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Removing Gases and Foul Air from Mines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an apparatus for removing gases and foul air from mines, and the object of the invention is to provide an apparatus that can be easily located in the entry or rooms of a mine for withdrawing gases and foul air therefrom, without interfering with the operation of cars or workmen within the mine.

A further object of this invention is to provide a simple and durable apparatus that will tend to create a vacuum in a mine and consequently draw fresh air into the rooms of a mine through the entry and shaft thereof.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, Figure 1 is a sectional view of the entry of a mine illustrating the arrangement of my apparatus, therein, Fig. 2 is a cross sectional view of the same, Fig. 3 is an enlarged longitudinal sectional view of a jet forming part of the apparatus, and Fig. 4 is a cross sectional view taken on the line X—X of Fig. 3.

Referring to the drawings by reference characters, an apparatus in accordance with this invention comprises an ejector consisting of a hollow cylindrical body-portion 1 open at each end and having the periphery at its ends exteriorly threaded as at 2, 3, respectively. The body-portion 1 approximately centrally thereof is provided with an angularly disposed nipple 4 formed with interior threads and which communicate with an L-shaped bore 5 extending transversely and longitudinally with respect to the body-portion 1. The bore 5 gradually tapers from the transverse portion to the end of the lon-

gitudinal portion thereof, the transverse portion being of greater diameter than the longitudinal portion. The longitudinal portion of the bore extends rearwardly to the rear end of the body-portion 1. The longitudinally extending portion of the bore 5 and a part of the transversely extending portion is formed in an internal enlargement 6 within the body-portion 1 and it is approximately half the length of the body-portion 1. Owing to the providing of the body-portion 1 with the internal enlargement 6, the opening of the body-portion at the forward end is cylindrical and at the rear end is of crescent or inverted U-shape in contour as at 7. Under such conditions, the opening at the rear portion of the body-portion is contracted.

Mounted upon the threads 2 of the body-portion 1 is an interiorly threaded coupling 8 to which is attached a gas inlet pipe 9 extending in the same direction as the body-portion and has its free end provided with a flared or funnel-shaped mouth 10. Secured to the threads 3 of the body-portion 1 is an elbow 11 for coupling to the body-portion a pipe 12 which depends and is disposed at right angles with respect to the body-portion 1. The pipe 12 constitutes a discharge pipe and communicates with an exhaust or outlet pipe 15. Secured to the nipple 4 is a depending pipe 13 which is disposed at right angles with respect to the body-portion 1 and communicates with a compressed air supply pipe 14 whereby compressed air is supplied to the bore 5. The pipes 14 extend along the entry 16 of a mine adjacent to the side walls thereof so as not to interfere with the passage of the workman or the cars. The pipes 12 and 13 are angle-shaped and extend upwardly at the side walls of the entry and at the top thereof and communicate with the body-portion 1, the latter being disposed approximately centrally of the top of the engine.

The exhaust or outlet pipe 15 has one end thereof closed while the opposite end extends up the shaft or opening 17 of the mine, while the pipe 14 has one end closed and its opposite end connected to an air compressor or pump.

When compressed air is supplied to the ejector the air discharged by the bore 5 creates a suction in the ejector and draws the gas and foul air through the pipe 9, into the body-portion 1, and is discharged therefrom

into the pipe 12 which opens into the exhaust pipe 15, the gas and foul air being discharged above the shaft or opening 17, one or more of the ejectors can be located upon the pipes 14 and 15 and furthermore the ejectors can be located at suitable places throughout the mine wherever gases and foul air have a tendency to accumulate.

From the foregoing description taken in connection with the accompanying drawings, it is evident that the invention aims to insure perfect safety to miners by removing foul air and gases so as to prevent explosion.

Having now described my invention, what I claim as new, is:—

1. In an apparatus for exhausting foul air from mines, the combination with a compressed air supply pipe and an exhaust pipe adapted to extend in the mine, an ejector comprising a hollow body-portion having an internal enlargement provided with an L-shaped bore gradually decreasing in diameter from its inlet to its outlet end, said internal enlargement contracting the opening of the body-portion at one end thereof and said enlargement of a length approximately half the length of said body-portion and terminating at one end at the rear end of the body-portion, said body-portion further provided with an inlet nipple opening into the enlarged end of said bore, a discharge pipe communicating with the rear end of the

body-portion, a compressed air feed pipe communicating with said nipple and with said supply pipe, and a foul air inlet pipe connecting with the inlet end of said body-portion and having the free end thereof provided with a flared mouth.

2. In an apparatus for exhausting foul air from mines, the combination with a compressed air supply pipe and an exhaust pipe adapted to extend into the mine, of an ejector comprising a hollow body portion provided with an internal enlargement formed with a substantially L-shaped bore gradually decreasing in diameter toward the discharge end of said body-portion and terminating at the discharge end of said body-portion, said body-portion further provided with an air inlet nipple communicating with the enlarged end of said bore, an angle-shaped discharge pipe communicating with the discharge end of said body-portion, an angle-shaped compressed air feed pipe communicating with said nipple and with said compressed air supply pipe, and a foul air inlet pipe communicating with the inlet end of said body-portion.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH C. STIRLING.

Witnesses:

A. H. RABSAĞ,
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