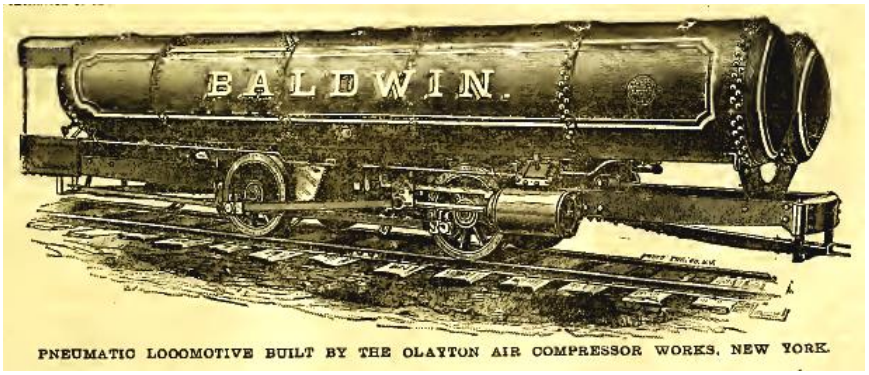
Pneumatic Locomotive for Mimes.

Compressed air offers a valuable source of motive power in mines where the condition of ventilation, or other causes, preclude the introduction of at am locomotive. Unlike steam, its operation introduces fresh, pare air into the passageways of mines, instead of detritus gas which must be prevented from reaching the lungs of the workmen. ln the construction of long railway tunnels, the removal of large quantities of material, without injuriously affecting the ventilation, becomes an important question. The experience of the engineers of the St. Gothard railway showed most conclusively the value of pneumatic locomotive for such work. The locomotives, as represented in the accompanying illustration, are especially well adapted to similar service.



PNEUMATIC LOOOMOTIVE BUILT BY THE OLAYTON AIR COMPRESSOR WORKS, NEW YORK.

The following may be enumerated as among the advantages peculiar to pneumatic locomotives:

In their use no deterioration can result from the burning out of fire-box or flues, nor from the injurious effects of alternate heating and cooling of the boiler and fire-box. Nor can the reservoirs become weakened from the formation of incrustation, nor from corrosion, if properly oared for. Such immunity from deterioration condones greatly to economy of maintenance and repairs.

There can be no liability to explosion from any sudden increase of pressure, from exposure of crown sheets, nor from the failure of safety valves to act. The initial pressure, which is obtained from the storage reservoir, and which can be readily gauged, is the greatest which can at any time come upon the main reservoir. In many mines where the temperature is constantly at from 80° to 90° Fahrenheit, the introduction of the cold air which escapes from the exhaust ports of pneumatic locomotives is most salubrious. The substitution of compressed air for steam, for running the hoisting engines in the mines of the Plymouth Coal Co., Luzerne county, Penn,, resulted in a reduction of the temperature in the section of the mine where engines were at work, one-third, viz., from 93° to 60° Fahrenheit.

No injury to the health of workmen can result from the operation of pneumatic locomotives in passages difficult of ventilation or in the intake airways of mines. Renewal of the atmosphere, rather thin vitiation, results from their presence. Their presence entails no liability to explosions from the ignition of dangerous gases, such as have caused the loss of thousands of lives and the destruction of millions of dollars worth of property. These are considerations which cannot fail to recommend pneumatic power as a means of locomotion to the managers of mines.

The Clayton Air-Compressor Works, 43 Day street, New York, from whose catalogue the above cut is taken, and whose air compressors for mining and tunneling purposes are so favorably known on this coast, build a special design of air compressors for supplying compressed air to pneumatic locomotives at a pressure of 400 to 600 pounds per square inch, experience having shown that the latter is as high a pressure as can be conveniently used. The compressors are built either duplex or single, with or without compound compression cylinders.

Mining and Scientific Press, V. 58, 2/9/1889, p. 91