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Air-Operated Overhead Door Opener

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AIR-OPERATED OVERHEAD DOOR OPENER

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Abstract

This report describes the design, fabrication, and testing of the Air-Operated Overhead Door Opener. The Opener is able to lift a 12' X 12' door in 12 seconds and is completely safe to operate. It is thus suitable for use in an explosive environment. The Opener, which uses compressed air, consists of an air cylinder, control valves, torsion spring, 4:1 ratio sheave system, and a safety device. A full-scale prototype was built. The test results prove that the Opener will open and close a door and that the safety device works when activated. The material cost of the Opener prototype is approximately $700, while the purchase price of an existing explosion-proof door opener is approximately $1500. Mass production should reduce the cost of the Opener to a price well below that of competitive openers.

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