

论文

深井软岩破碎巷道底臃原因及处置技术研究

刘泉声, 刘学伟, 黄兴, 刘滨

- 1. 中国科学院武汉岩土力学研究所 岩土力学与工程国家重点实验室, 湖北 武汉430071;
- 2. 武汉大学 水工岩石力学教育部重点实验室, 湖北 武汉430072

摘要:

根据顾北煤矿南翼(11-2)胶带机巷道工程实际, 依据长期的现场调查和变形监测, 对顾北矿区深井软岩破碎巷道底臃影响因素、特性进行了分析, 得出了底臃主要原因, 认为底臃主要是由于巷道底板处于敞开状态而成为巷道变形和应力释放的主要场所, 软弱破碎的围岩在地应力作用下挤压流入到巷道内, 形成较大的挤压流动性底臃。在此基础上, 提出了采用混凝土反拱地坪、深浅孔注浆、高预应力组合锚索的针对深井软岩破碎巷道底臃综合处置技术, 同时研制开发底板锚索钻机, 解决了底板组合锚索孔施工困难。现场的跟踪监测表明, 该技术能有效治理底臃还能加强两帮稳定性。

关键词: 岩石力学; 深部开采; 软岩破碎巷道; 底臃; 支护技术

Research on the floor heave reasons and supporting measures of deep soft fractured rock roadway

Abstract:

The south wing (11-2) conveyor roadway at Gubei Coal Mine is in a fault zone. The influence factors and characteristics of floor heave in this fractured roadway were analyzed through site investigations and deformation monitoring. The study indicates that the main causes of floor heave are the squeezing and flowing of fractured rock mass, which means the floor becomes the area for releasing stress and deformation because of no support. As a result, the soft fractured surrounding rock feeds into the roadway under high stress and causes floor heave. Therefore, a technique, which uses reverse arch concrete floor, grouting, and high pre stressed combined cable to control floor heave, is proposed. In addition, a floor cable drilling machine has been developed to overcome the difficulty in drilling the cable holes. The site monitoring and observations indicates that the technique can not only improve the floor stability permanently, but also effectively enhance the stability of roadway walls.

Keywords: rock mechanics; deep mining; soft fractured roadway; floor heave; supporting technique

收稿日期 2012-06-20 修回日期 2012-08-24 网络版发布日期 2013-04-25

DOI:

基金项目:

国家自然科学基金重点基金资助项目(41130742); 国家自然科学基金青年基金资助项目(41102198)

通讯作者: 刘泉声

作者简介: 刘泉声(1962—), 男, 江苏溧阳人, 研究员, 博士生导师

作者Email: liuqs@whrsm.ac.cn

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