

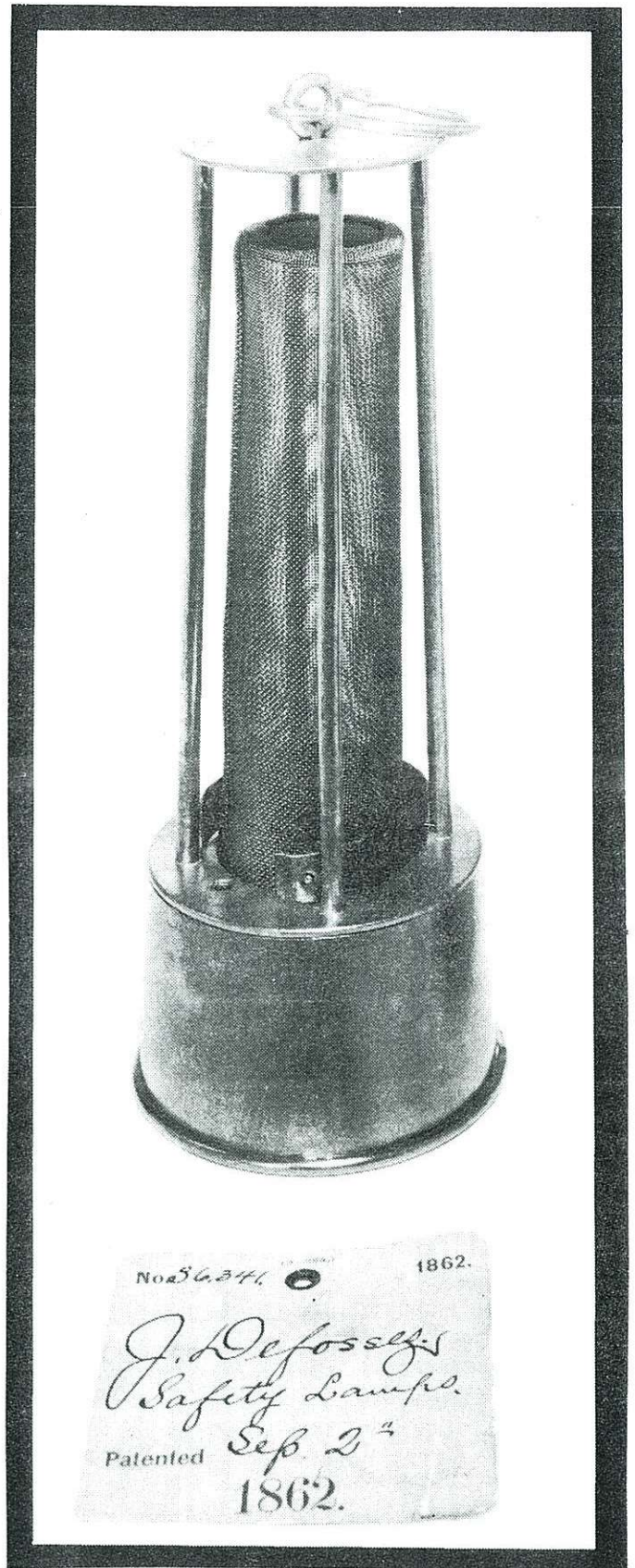
# SAFETY LAMP PATENT MODELS FROM THE SMITHSONIAN INSTITUTION

by **Tony Moon**  
Sandy, Utah

Many thanks to Wendell Wilson for sending three photographs of safety lamp patent models that are in the Smithsonian collection. All of the photographs are courtesy of the National Museum of American History. Two of the lamps still have their Patent Office tags and, although the third lamp has no tag, I am sure it is a patent model.

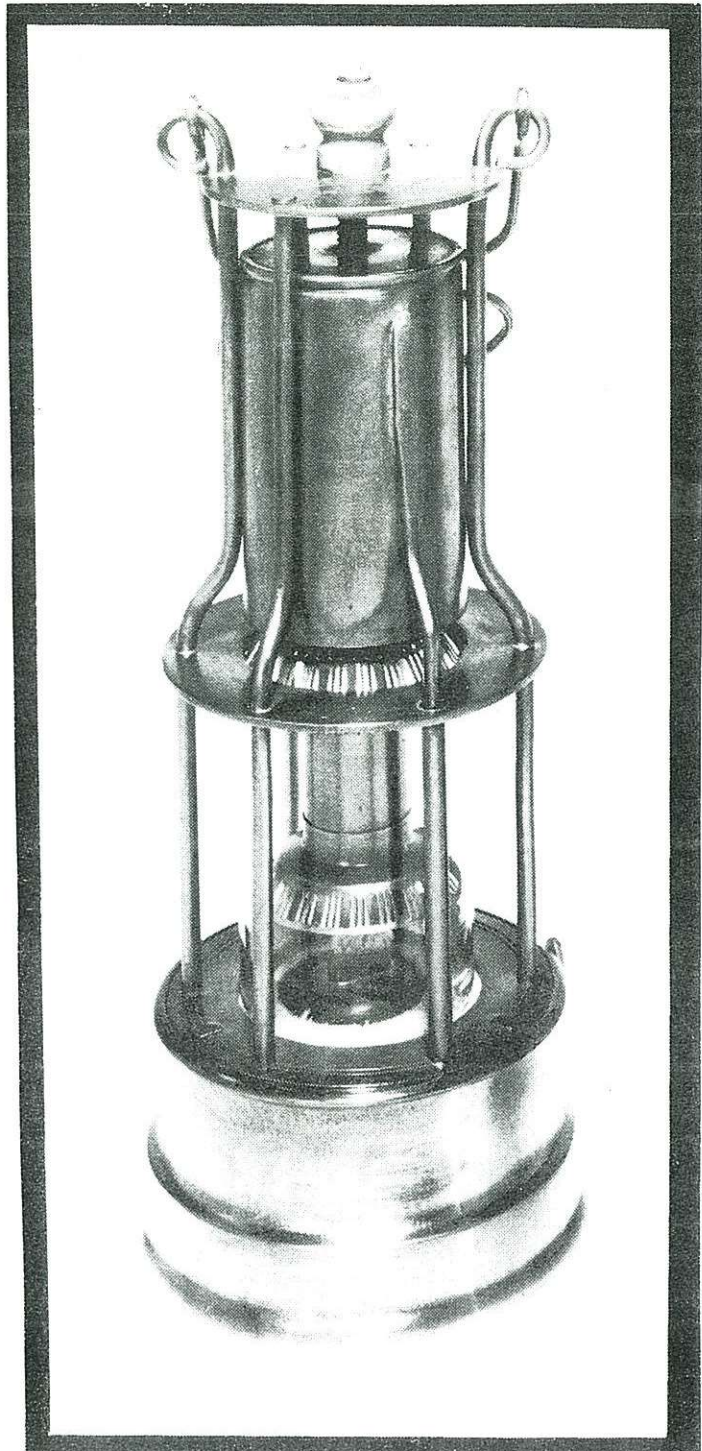
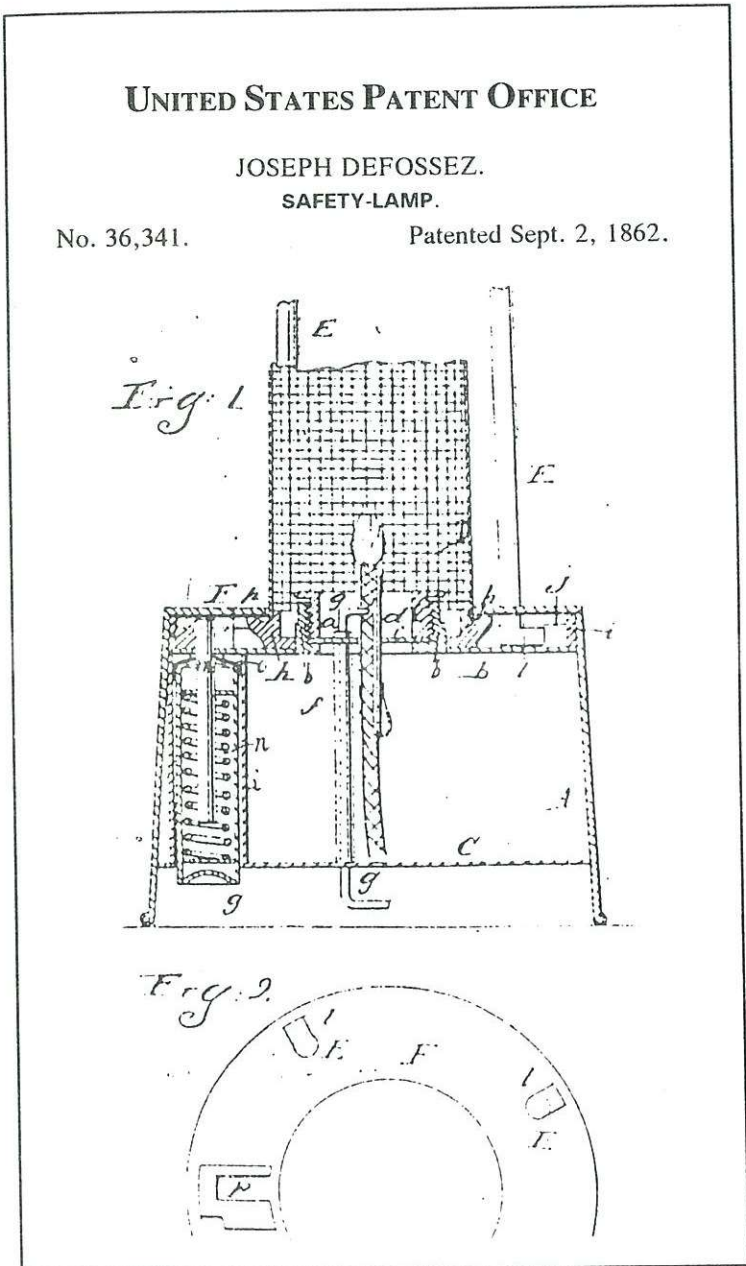
Patentees prior to 1880 were required to provide models of their inventions. After 1880 the submittal of models was optional and the front page of all patents, even as late as 1904, have the notation whether models were submitted or not. After about 1884 very few models were submitted and it is believed that they were only submitted when the Patent Office requested them, or for specific categories such as flying and perpetual motion machines. As some 250,000 patents had been granted by 1882 it is not surprising that models became optional--the Patent Office was inundated with them! Two fires, one in 1835 and another in 1877, destroyed significant numbers of models. In 1907 it was decided that models would not be required for any category and the Smithsonian Institution was permitted to select models for their permanent collection. In the 1920's the Smithsonian selected more models and from just a personal observation they must have obtained most of the mine lighting models as none have been available in various patent model sales over the past 20 years!

**Figure 1.** A photograph of the patent model of the Safety Lamp patented by Joseph Defosseze on September 2, 1862. (Photo courtesy of the National Museum of American History)



**Patent Number 36,341: Safety lamp** patented by Joseph Defossez of Paris, France, on September 2, 1862. See Figures 1 and 2. The patent is for a pneumatic lock on a conventional Davy lamp. The lock is a spring loaded pin which can be retracted (allowing the lamp to be opened) by overcoming the spring force using an air pump applied top point "g" in the patent illustration.

**Patent Number 95,184: Lantern** patented by Nicolas Beaufils and Jacques Rexroth of Paris, France, on September 28, 1870. See Figures 3 and 4. This lamp uses an ingenious and complicated mechanism to ensure that the lamp cannot be opened when the lamp is lit. In order for the lamp to be opened the top screw, which moves the top cylinder, must be adjusted so as to lower the cylinder and this closes off the air supply to the lamp thus extinguishing it. The lamp can then be opened using the bayonet mechanism. The lamp does not use conventional gauzes but depends on two discs with small slits in the air path.



**Figure 2.** The patent drawings for the Safety Lamp patented by Joseph Defossez on September 2, 1862.

**Figure 3.** A photograph of the patent model of the Lantern patented by Nicolas Beaufils and Jacques Rexroth on September 28, 1870. (Photo courtesy of the National Museum of American History)

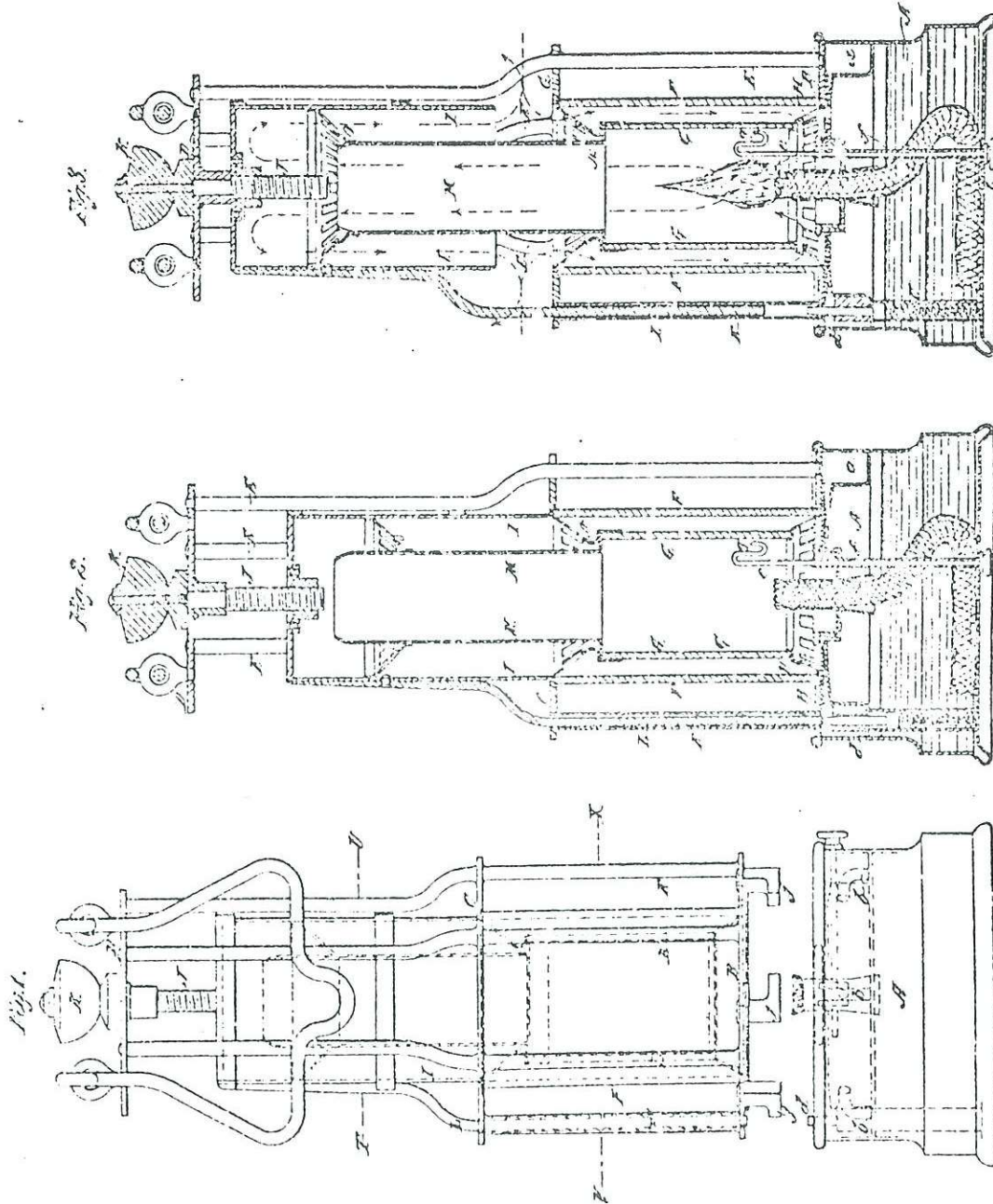
BEAUFILS & REXROTH.

2 Sheets—Sheet 1.

Lantern.

No. 95,184.

Patented Sept. 28, 1870.



*Witnesses:*  
G. D. Brooks  
Wm. Clark

*Inventors:*  
A. B. Beaufils  
J. Rexroth.

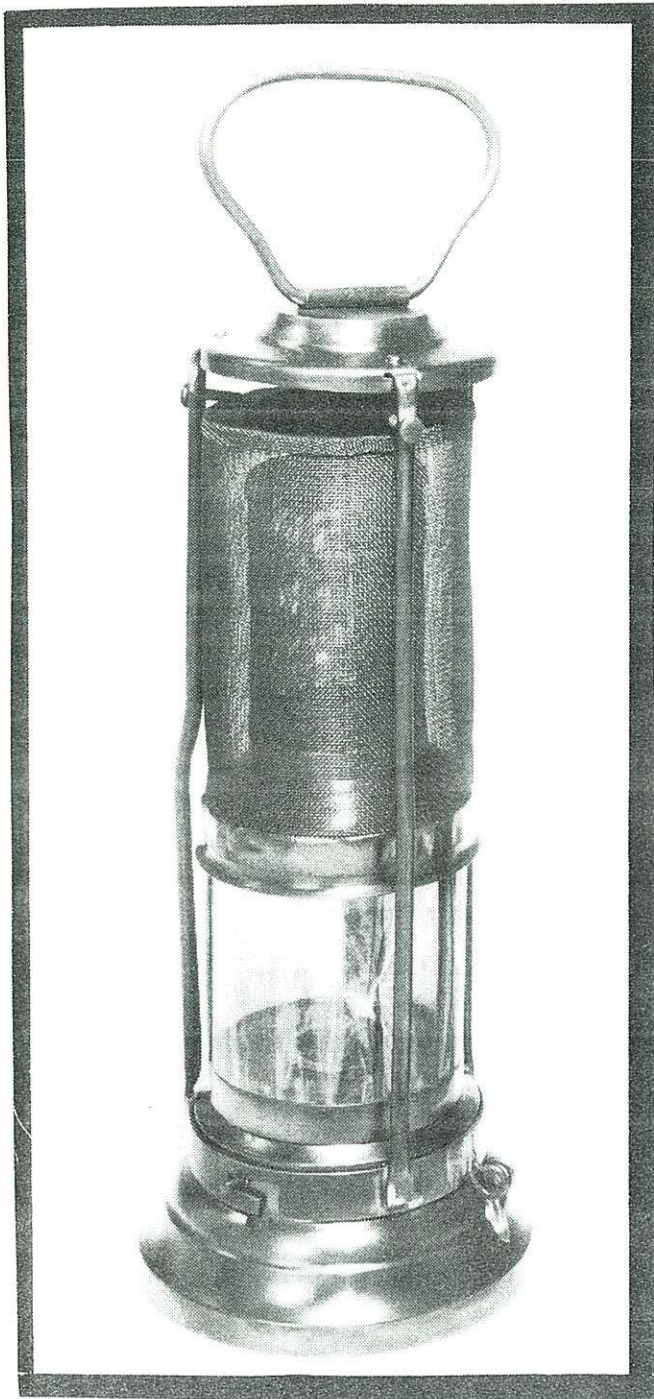
BY PETERS PHOTO LITHOGRAPHER, WASHINGTON, D. C.

Figure 4. The patent drawings for the lantern Patented by Nicolas Beaufils and Jacques Rexroth on September 28, 1870.

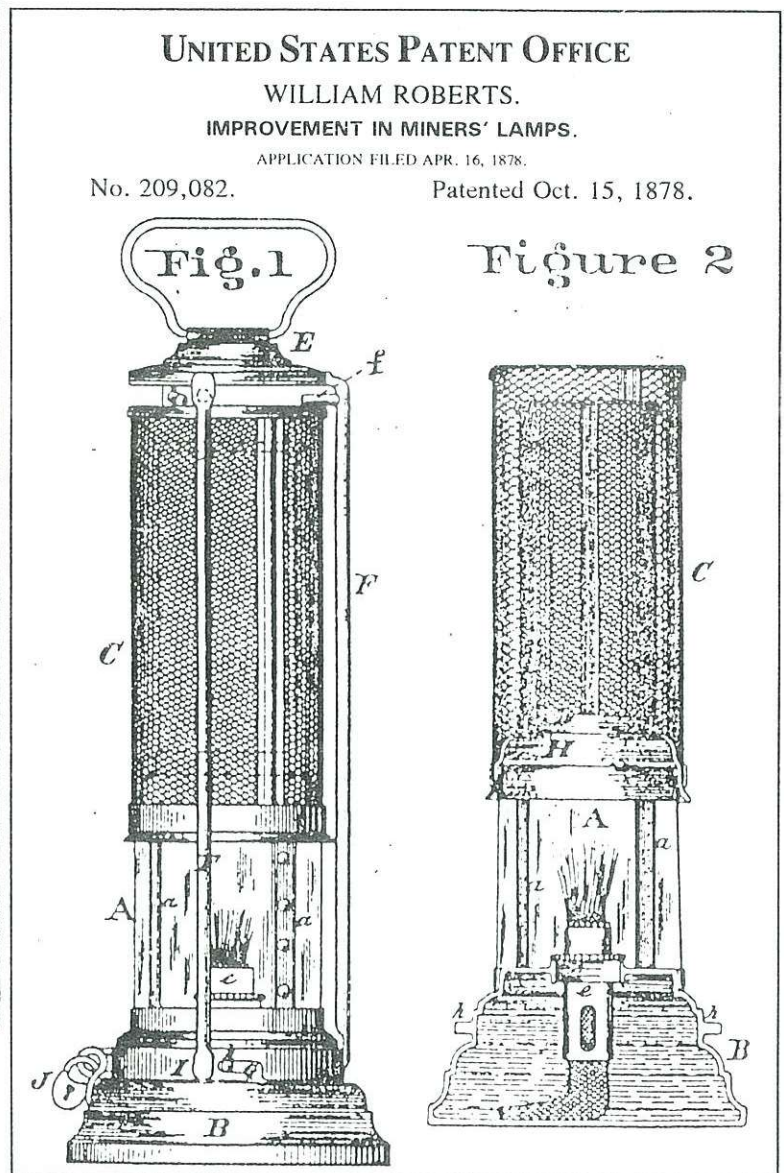
**Patent Number 209,082: Miner's lamp** patented by William Roberts of Cincinnati, Ohio, on October 15, 1878. See Figures 5 and 6. This is almost a home-made version of the well known Marsaut lamp with double concentric

gauzes. The most unique feature is the use of a mica cylinder in place of glass. This, it is stated, "obviates the danger likely to occur from glass chambers by cracking when exposed to varying temperatures, or when water is accidentally brought in contact therewith." The mica cylinder was not part of the claims which essentially covered the way in which the lamp was constructed similar to later design patents. Another interesting feature is the bayonet oil vessel attachment.

The author does not know any commercially made lamps which match the patent models. Pneumatic locks were used for a limited time on some English lamps.



**Figure 5.** A photograph of the patent model of the Miner's Lamp patented by William Roberts on October 15, 1878. (Photo courtesy of the National Museum of American History)



**Figure 6.** The patent drawings for the Miner's Lamp patented by William Roberts on October 15, 1878.