

Watch That Flame!

by Bob Guthrie

Introduction: While my wife and I were watching our table at the Eastern Mining Artifacts Collector's Meeting last September, an older man came up and was looking at the oil wick lamps I had out on the table. He asked, "Hey young fella (I liked him right away), you ever fire one of these up?" Somewhat chagrined, I replied that I had not done that, but took the opportunity to ask him what it was like. He told us that he used to wear one when he worked in one of the local mines. He vividly described that "they would burn with a flame about the size of your hand sitting up there on your head attached to your hat." He held his somewhat arthritic and knarled hand up to his forehead and wiggled his fingers. "You learned pretty quick to keep your head up," he said. "That oil would run out and there would be balls of fire dripping down on your clothes and the floor." We talked for a while longer and that was the impetus for me to do this bit of research on modifications of miners' oil wick lamps that might help with this serious disadvantage. I began by searching the known patents for oil wick lamps from the list that Dave Johnson published in EUREKA!, Issue 14, January 1995, and Henry Pohs' "The Miner's Flame LightBook," Appendix 14, pp.695-700.

The Problem: I tried to analyze the points at which such lamps could leak. I ignored those that might have been damaged by melting of the solder or punctured at the base of the spout by trying to advance the wick or whatever. It appears to me that these could leak: (1) from the lid, (2) from the vent tube in the lid or (3) from the spout. Here are some of the patents that I found which tried to address the problem. If I had access to one of the lamps from the patents, I have included a photograph in the appropriate section. I am sure there are some of these lamps out there in collections that may not have surfaced yet on Ebay or MiningCollect. In all, I reviewed approximately 120 patents for oil wick lamps or modifications for oil wick lamps. With the help of a model that I borrowed from my hairdresser, I have shown an ordinary lamp in the upright position and subsequently with the head bent down. Note the angle of the spout, and that it would not take much more to make a fluid pour from the spout (FIGURE 1). As I describe the modifications in the lamps, I will use the same model to illustrate the improvements. I hope this is not too simplistic, but as the saying goes, "one picture is worth a thousand words."



Figure 1: Standard oil wick face lamp. Note the angle of the spout in the upright and then the flexed figure. It would not take much more of a bend to allow the oil to pour from the spout.

The Solutions: Starting at the top, the cap or lid received one of the early patents by Jacob Vogele. Many of you are familiar with this lamp, Patent 229929, July 13, 1880. Vogele made the top of the lid into a dome shape and placed a vent hole in the top of the dome. In the slightly concave bottom of the lid he placed another vent hole. Since the lid bottom was concave, the oil tended not to flow out the top, and any oil that escaped into the lid could drain back into the font (FIGURE 2). A number of similar patents followed. On May 30, 1882, Henry Pearce was issued Patent 258802 in which he used a domed lid with an insert that had holes around the periphery to allow ventilation and allow escaped oil to flow back into the font (Pearce Patent and FIGURE 3). Probably the most familiar lamp to follow this pattern is the O'Keefe Patent issued July 21 1896. Most of you will associate this with the familiar disc-shaped boot kick, but in the same patent he described his modification of the dome-shaped lid by using a double-walled bottom of the lid with appropriate holes for vent and drainage.

A secondary benefit claimed by each of these inventors was that this would help in preventing clogging of the vent. We are all familiar with the small vent tubes in the Trethaway lamps, and I have often wondered whether they clogged easily or not.



*Figure 2:
Jacob Vogele
miner's face
lamp. Note the
domed lid with
vent hole and
the recessed
bottom that
would collect
oil and return
it to the font.*



(Model.)

H. P. PEARCE.
CAP FOR MINERS' LAMPS.

No. 258,802.

Patented May 30, 1882.

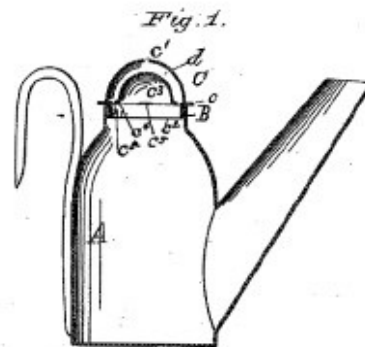


Figure 3: Henry Pearce lamp and patent. Note the domed lid. Pearce placed the drainage holes around the periphery to return the oil to the font.

One of the earliest patents that resulted in a modification of the spout was issued to John H. Gable on July 22, 1879, No. 217791. I stumbled across the patent model of this lamp on a visit to the Smithsonian in 1991 and included it in an article for Eureka!, Issue 2, April, 1992. In rereading Gable's patent application, he claimed that the flattened spout allowed for a better control of the flow of the fuel in the spout and resulted in a better light because it was oriented in the transverse plane. He makes an interesting statement in that the round spout is better suited to the production of heat than light!! His flattened spout would certainly have limited the oil flow and probably lessened the chances of spillage (FIGURE 4).



Additional modifications of the spout were patented later than most of the lid modifications. The first and only patent that I found changing the angle of the junction of the spout and the font was issued to C. D. Felix on July 31, 1894. Many of Felix's lamps are around today. Compare the photos of the model with the standard lamp to those of the Felix lamp affixed to the same hat. It is plainly seen that the head of the model can be flexed (bent forward) much farther without spilling of the oil from the spout in the Felix model (FIGURE 5).

Figure 4: John Gable lamp with flattened spout. Claimed in patent that this controlled the flow of fuel.



Figure 5: Felix lamp. Note the steeper spout angle in the flexed position.

The P. & A. Good lamp has been identified and reported by Paul and Nancy Hyatt, EUREKA!, Issue 32, October 1999. The patent date that is stamped on that lamp is May 30, 1893. The design patent of that date is for an oil can, and no mention is made of a miner's lamp. My lamp has only the patent date on the font. I suppose they took some manufacturing freedom and decided to use the same patent date. This lamp has the most vertical spout of any of the leanback lamps. Several makers including Trethaway copied the leanback design. These modifications must have proved modestly successful, because a number of them have survived the test of time (FIGURE 6).

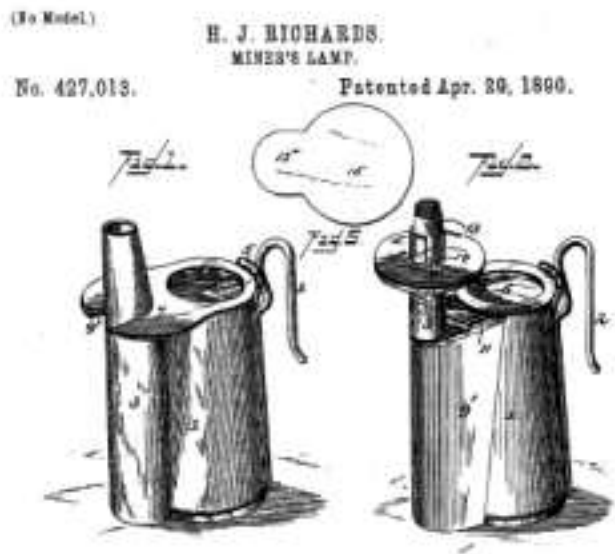


Figure 6: Three models of leanback lamps. The Felix, the P & A Good, and the Trethaway. Note the almost vertical angle of the spout of the Good lamp. Also note the bottoms of these lamps are oval, not round.

Another modification of the spout became known as the highspout. By placing the opening of the spout on the shoulder of the lamp, a much greater angle could be allowed before the fuel could spill (FIGURE 7). I found no patent for this lamp. This is indeed odd, because it seems that these guys patented every minor modification of which they could conceive. These lamps must have been somewhat successful as a number of companies made them and quite a few have survived.



Two patented lamps used a combination of modifying the spout and its attachment to the front or body of the lamp. Henry J. Richards was issued patent No 427013 on April 29, 1890 (Richards and Gardner Patent). This is an earlier date than the Felix Patent, but Richards clearly states that a more perpendicular position of the spout is superior because it avoids the spilling of the fuel from the spout when bending over (FIGURE 9). He created this type of spout by modifying the base and how the spout is attached. In the patent he states that the angle of the spout cannot be satisfactorily changed in an ordinary lamp and still have a round base. He claims the round base is necessary for the best burning. The patent describes three modifications, all of which use the same type of bottom attachment. FIGURE 8 is an example of one of the patent modifications. Note that one-half of this patent was assigned to Charles Gardner. The illustrated lamp has only the patent date of April 29, 1890. The modification described in Fig 1 in the patent surfaced a few years ago at one of the collectors' events, but I don't know its present whereabouts.



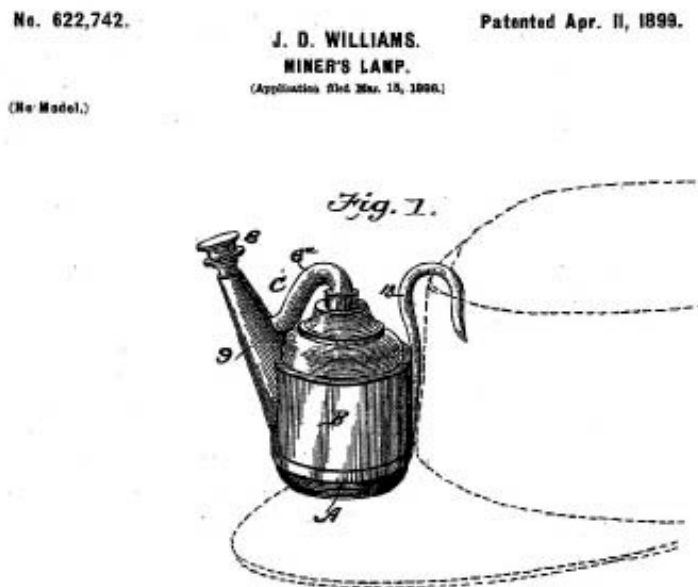
RICHARDS AND GARDNER PATENT: The full patent shows four different modifications of this lamp. My lamp, shown right one of the examples not shown.

Figure 9: Richards and Gardner lamp stamped with the patent date only. Note the unique shape of the bottom and spout attachment.



Figure 9: Richards and Gardner lamp. Note the nearly vertical inclination of the spout in the flexed position.

J.D. Williams was issued Patent 622742 on April 11, 1899 (Williams Patent). In reviewing this, I was struck that this might well have worked to keep the fuel from spilling from the font, but the Williams lamp was designed to use a volatile fuel and not the standard oils or Sunshine that the other lamps used. Nonetheless, I have included the lamp here for thought.



J. D. WILLIAMS PATENT: Uniquely configured lamp, which was designed for volatile fuels but could have been adapted to others as well.

The Antons, not to be left out, patented the drip ring on March 29, 1904, No 756151. This same patent also included the reinforcement at the base of the spout. John Anton claimed that the ring helped to spread the flame and would "retain any drippings of oil from the wick, thereby preventing the oil from igniting when flowing down the side of the spout" (FIGURE 10). These drip rings were used by a number of different companies on many models.



Figure 10: Anton lamp with drip ring.

Three very innovative lamps addressed the problem by modifying the font of the lamp to control the flow and quantity of oil supplied to the main wick of each lamp. Two of the three also employed modification of the angle of the wick tube. On June 4, 1878, Patent No. 204628 was issued to J. C. Smythe of Plymouth, PA. This was a two-chambered lamp with the lower chamber housing the main fuel supply and a smaller wick conveying the oil to the upper chamber that housed the main wick (Smythe Patent). This allowed the use of lighter fuels such as kerosene without the risk of spilling out of the spout. These lamps are quite rare but can be found in several collections. They were manufactured by J. W. Patten Co. of Wilkes Barre, PA. My example has been used and the wick tube is shortened (FIGURE 11).



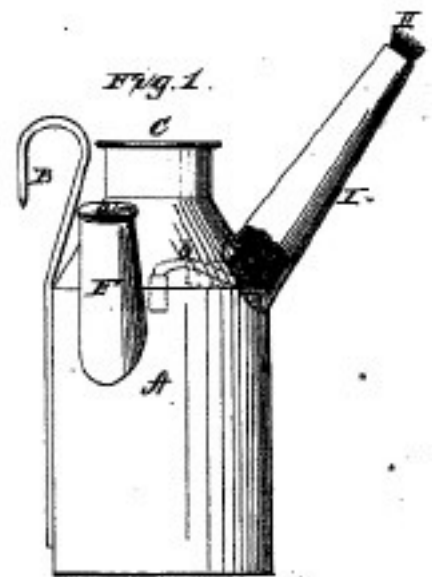
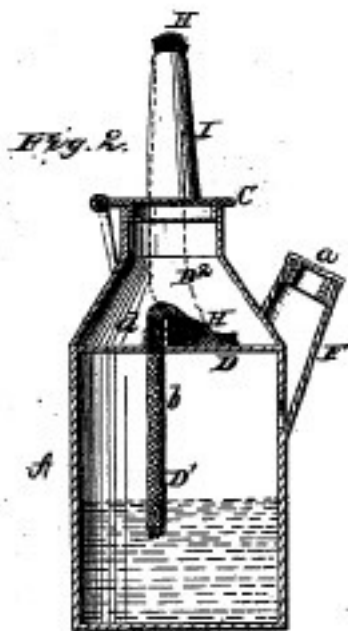
Figure 11: The Smythe lamp. Note the separate filler tube attached to the lower chamber and the hole for the smaller wick leading from the lower chamber to the upper main wick chamber.

J. C. SMYTHE PATENT:
Note lower chamber houses the fuel, which must be wicked up to the wick chamber.

J. C. SMYTHE.
Miner's Lamp.

No. 204,628.

Patented June 4, 1878.



The second of these patents was No. 220582, October 14, 1879, issued to J. O. Davies, J. O. Jones, and T. Thomas with Thomas assigning his portion to H. C. Magee also of Plymouth, PA (Davies Patent). I find it very interesting that both Smythe and Davies were from Plymouth PA. Their lamp is also a two-chambered lamp using the upper chamber as the main fuel reservoir and a smaller wick conveying the fuel to the lower chamber that housed the wick leading to the spout (FIGURES 12 & 13). They also used a screw cap to prevent leaking from the lid. Several of these lamps exist in collections and some are labeled with Davis (sic) and Magee, Patented October 10, 1879, on one side, and F. W. Watson, Maker, Scranton, PA, on the other side of the font. The illustrated lamp has only the patent date.

J. O. DAVIES, J. O. JONES & T. THOMAS.
Miners' Lamp.
No. 220,582. Patented Oct. 14, 1879.



J. O. DAVIES, et. al.: Note that in this lamp the main fuel chamber is the upper chamber. This would appear to be more efficient.

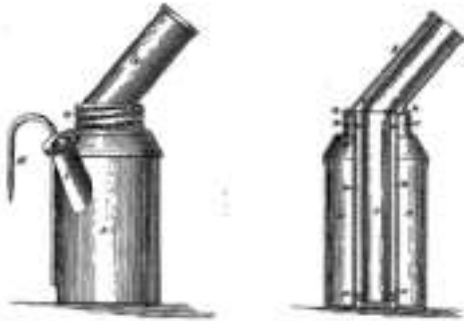
Figure 12: The Davis (sic) and Magee lamp assembled. The patent is issued to Davies et. al.

Figure 13: The lamp disassembled showing the separate fuel chamber with small wick leading to the bottom housing with the main wick.



The third of this type of lamp is the most unusual and innovative. This Patent No. 320287 was issued to H. J. Richards of Wilkes Barre, PA, on June 16, 1885 (Richards Patent). This is the same Richards noted above. This two-chambered lamp houses the main fuel supply in an outer chamber surrounding the inner chamber where the wick is housed. Small channels connect the two chambers as shown in FIGURE 14. The angle of the wick tube would also help in the spilling problem. This lamp is clearly marked with the Richards name and the patent date (FIGURE 15).

(No Model.)
H. J. RICHARDS.
 MINERS LAMP.
 No. 320,287. Patented June 16, 1885.



H. J. RICHARDS: The illustrated lamp follows the patent exactly.

Conclusion: After speaking with that miner at the Johnstown meeting, I took a closer look at the ways in which the oil wick lamp has been modified to minimize the oil spillage/fire problem. I doubt that any of them eliminated this problem completely. In reviewing the patents, there were some bizarre looking lamps that have may yet be "rediscovered," to use one of Henry Pohns' favorite phrases. Another factor that is mentioned in several of the patents is that these modifications would conserve oil. Since the miner often had to supply his own fuel, this could have been an important consideration. I still have not fired up any of these lamps, and my wife warns me that any such attempt must be done outdoors. All of the lamps in the illustrations are from my own collection.

Figure 15: The distinctive shape of the Richards lamp.





*Figure 14: H. J. Richards lamp.
Note the fuel chamber surrounds the wick chamber and the fuel flows through small connecting channels.*

