# The Friemann & Wolf Warning Lamp

*Werner Horning*

In 1955 Friemann & Wolf invented and constructed a universal in spection lamp for all enterprises with danger from gas or bad air. The safety lamp is fueled by benzine, and ignited with a pull rod attachment and a small dry-cell battery. Also included is a battery cap lamp attachment. At the point of attachment, this connection includes a photo-cell. The electric cap lamp includes a transistor and relays as well as accumulators.

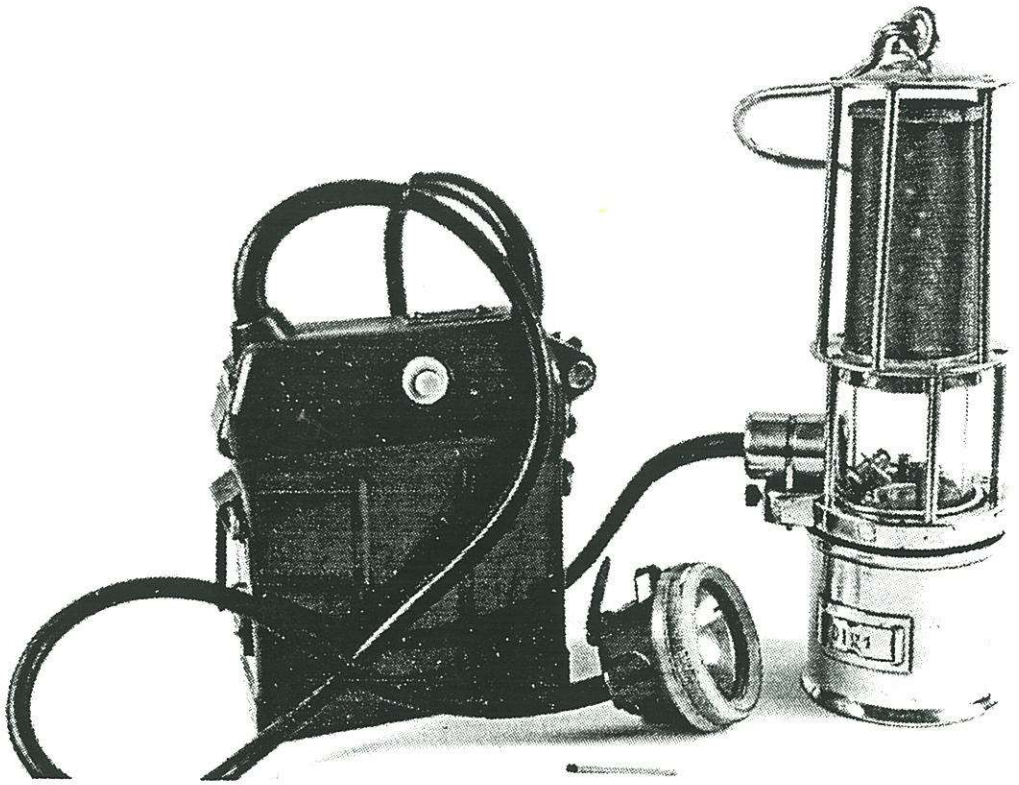
When the safety lamp is lit, the electric cap lamp responds. The light from the flame safety lamp switches a contact in the accumulator, and the cap lamp is lit.

The safety lamp responds to bad air or a lack of oxygen by flickering, reducing the light that is generated, and this effect is also transmitted to the cap lamp, warning the miner of danger.

The electric cap lamp may even go out, warning the miner to leave the zone of poor oxygen immediately. By pressing a button at the accumulator of the cap lamp, the miner has light again to leave the place safely.


In normal air, the flame safety lamp can be ignited again and the combined inspection lamp is ready for gas testing.

In case of the presence of methane, ($CH_4$) the safety lamp works like a normal safety lamp. The height of the fire-damp cap shows the percentage of methane.



## No. 359

**Class of Lamp:** Composite Safety Lamp Type 20601/Benzine Safety Lamp No. 20502 combined with modified Accumulator Cap Lamp Type 1410

**Place and Country of Origin:** Suisburg/Westfalia, Germany

**Manufacturer:** Friemann & Woolf

**Material:** Safety Lamp: All Brass
Accumulator-Lamp: Plastic

**Dimensions of Safety Lamp:**
Height: 292 mm
Diameter: 87 mm
Length of Hook: 130 mm

**Dimensions of Accumulator Cap Lamp:**
Length: 135 mm
Width: 55 mm
Height: 170 mm

**Year of Production: ca. 1955**

**Features of Construction of the Safety Lamp:** Upper air inlet. filament ignition which is fed by a dry-cell battery, and works by pulling rod. double gauzes. Magnetic locking anchor.

**Specialty:** Device to press a photo-cell against it, which is connected with the accumulator of the cap lamp.

**Features of Construction of the Accumulator Cap Lamp:** Magnetic. double cell silver zinc-accumulator 3V, 6A. Switch at the cap lamp. Two filament bulb.

**Specialty:** A transistor and two relays are housed in the middle part of the accumulator box. In case of poor oxygen causing a small flame, the photocell sends a signal to the cap lamp and it begins to flicker and it will be extinguished soon. It is a warning of danger. By pressing the push button at the accumulator, the cap lamp lights again.

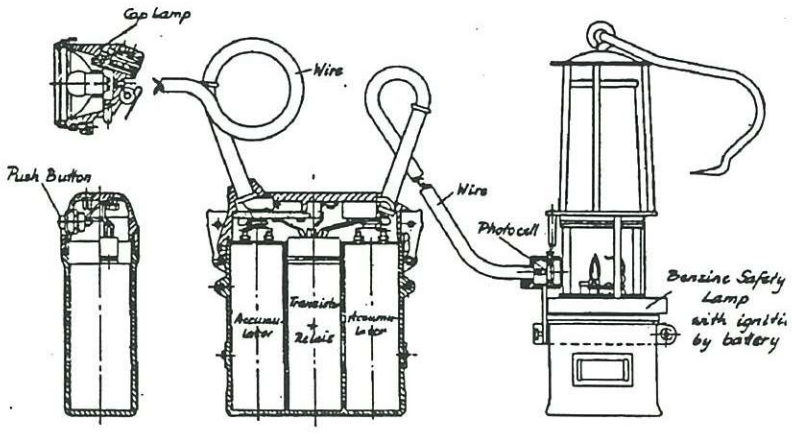



Fig. 1: PW Warning Lamp 20601
Friemann & Wolf GmbH, Duisburg, Germany