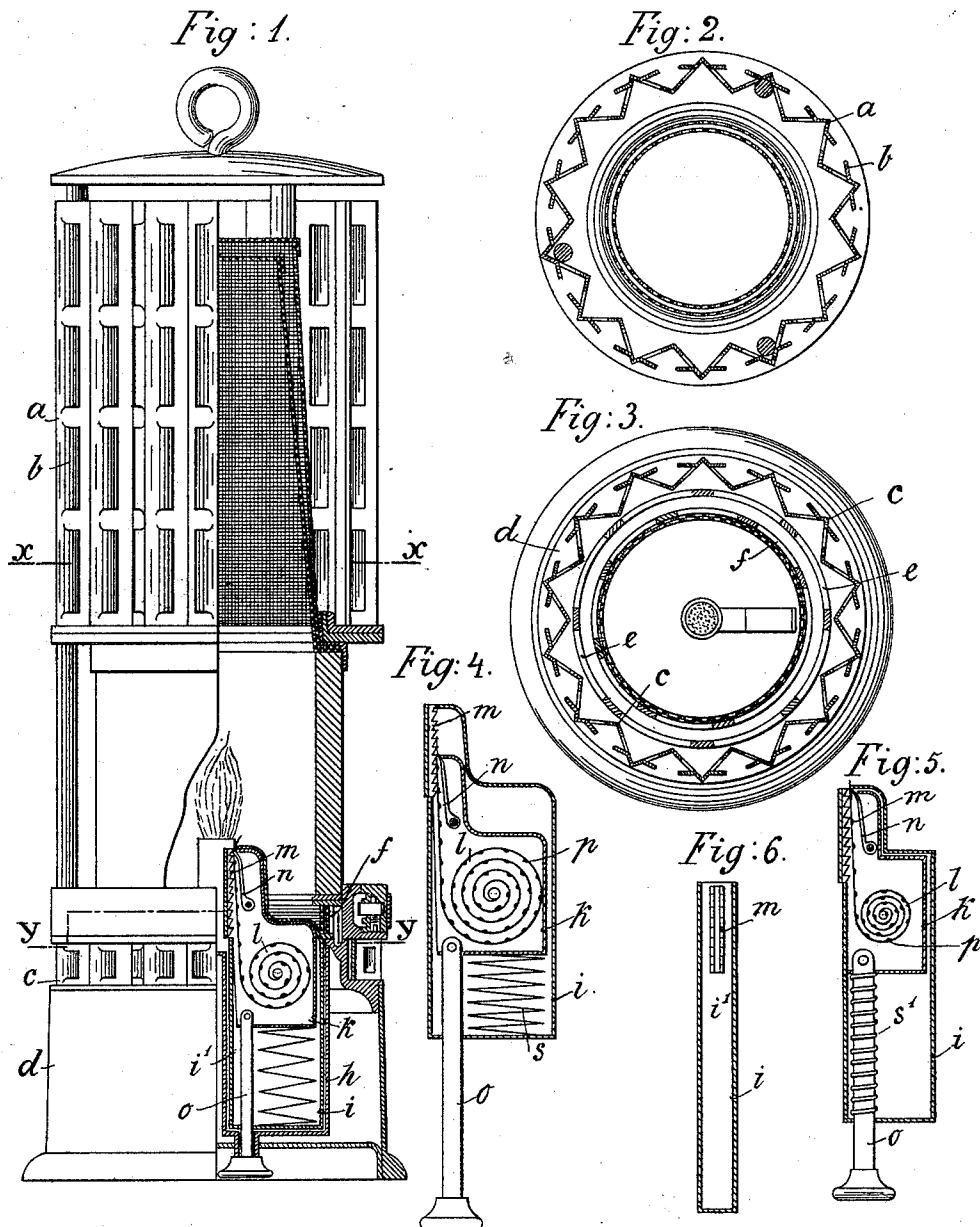


(No Model.)

C. H. WOLF.
MINER'S SAFETY LAMP.

No. 509,418.

Patented Nov. 28, 1893.



Witnesses:
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by

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UNITED STATES PATENT OFFICE.

CARL HEINRICH WOLF, OF ZWICKAU, GERMANY.

MINER'S SAFETY-LAMP.

SPECIFICATION forming part of Letters Patent No. 509,418, dated November 28, 1893.

Application filed November 30, 1892. Serial No. 453,590. (No model.)

To all whom it may concern:

Be it known that I, CARL HEINRICH WOLF, manufacturer, a subject of the King of Saxony, residing at Zwickau, in the Kingdom of Saxony, Germany, have invented a new and useful Improved Miner's Safety-Lamp with Protecting-Shield, of which the following is a full, clear, and exact description.

This invention relates to a miner's improved safety lamp which is provided with a protecting shield.

The object of the protecting shield is to enable the lamp to be used in the most violent current or fire damp without there being the least risk of the gauze getting so heated as to ignite any fire damp which may come in contact with same. This absolute security of the lamp is obtained by the protecting shield which encircles the gauze and which is provided with projecting parts forming slots and diverting the current of fire damp in another direction. A protecting ring provided with similar slots or openings and allowing of the passage of air to the flame from underneath the burner, is arranged on the upper part of the lamp cistern.

I will now describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a part view and part vertical section of the safety lamp. Fig. 2 is a horizontal section on line $x-x$ of Fig. 1. Fig. 3 is a similar section on line $y-y$ of Fig. 1. Figs. 4 and 5 are sectional views of the igniting-device in two different modifications. Fig. 6 is a section of that side of the casing of the igniting device carrying ratchet teeth.

The protecting shield a encircling the usual single or double wire gauze cylinder of the safety lamp, is a mantle consisting of corrugated or plaited sheet iron which is pierced with rows of slits. These slits are formed by making suitable cuts in the shield, and bending outward the tongue or leaves formed of such cuts. By this arrangement the rushes of air or fire damp coming against the shield, or rather against its plaited edges, are split and diverted by the tongues or leaves and thus it is impossible for the fire damp to break through the gauze to the flame. A protecting ring or band c with similar slits or open-

ings can be arranged on the lamp cistern d and which will allow of the passage of the necessary air for combustion under the burner of the lamp. This air passes through openings e of the shell and through the single or double gauze with which the ring f is fitted (Fig. 3) before it reaches the flame, so that the light remains steady under all conditions. The protecting ring c for the inlet of the air can however, if required, be dispensed with.

The protecting shield a and the ring c serves the further purpose of considerably weakening, if not removing altogether the effect of the impact of air or gas passing from inside to outside, and, in this way, the re-igniting of the lamp in case it should have been extinguished cannot be the cause of an explosion of the outside fire damp, owing to the ignited mixture within the gauze cylinder breaking through and coming in contact with such fire damp.

I have shown an igniting device herein which may be briefly described as follows: It comprises the casing h in the lamp body d composed of a shell i which holds and guides the box k containing the igniting strip l which passes out through the top of the box k , said strip passing over the teeth m , on the disk n , of the casing. The strip is moved by a pawl n pivoted in the box k ; the strip having the caps p . The box is moved up and down by the stem o under tension of the spring s . While I have shown the igniting device I make no claim to the same herein.

Having now particularly described and ascertained the nature of this invention and the manner in which the same is to be performed, I declare that what I claim, and wish to secure by Letters Patent, is—

1. In combination with a miner's lamp, a shield formed with corrugations extending vertically and forming a series of inclined faces, the metal of said shield being struck from said inclined faces and bent back to form tongues extending toward the opposite face and across the intervening space said tongues having an opening between their adjacent edges substantially in line with the base of the corrugation, substantially as described.

2. In combination with a miner's safety

lamp having a cistern *d*, a burner and a cor-
rugated ring having perforations and tongues
extending from its inclined walls across the
intervening space said ring extending around
5 the cistern adjacent to the burner, substan-
tially as described.

In witness whereof I have hereunto signed

my name in the presence of two subscribing
witnesses.

CARL HEINRICH WOLF.

Witnesses:

ARTHUR BAERMANN,
ALFRED MEISTER.