

IMPROVED WOLF FLAME SAFETY LAMP

No 100

(APPROVED BY U. S. BUREAU OF MINES)

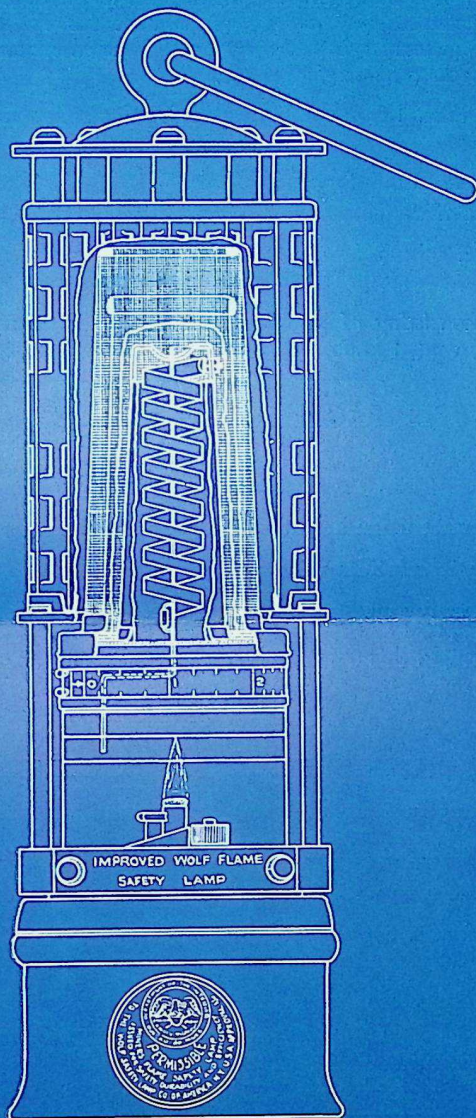


Fig 1

MADE IN U.S.A.

PRODUCT OF

Wolf Safety Lamp Co. of America, Inc.

68-72 EMERSON PLACE

BROOKLYN NEW YORK

THIS pamphlet describes our improved permissible Wolf round burner flame safety lamp using a thermostatic bimetal coil recently developed by the United States Bureau of Mines. It is our thought that this new method of detecting methane will greatly aid the mining profession, especially the fireboss in making his inspections more safely and reliably, since it offers a positive means of indication.

This new device operates on the principle of the bimetallic thermostat; that is, two metals united by riveting, brazing or welding one metal possessing a high co-efficient of expansion and the other a low co-efficient of expansion. When exposed to heat or temperature rise the material of high expansion properties will expand or lengthen. The other material being of low expansion properties will have little or no expansion. The result is a bending action. When the temperature drops, the high expansive material shrinks back to its original length and the bimetal straightens back to its original shape.

The application of a bimetallic coil to a flame safety lamp has made it possible to obtain double indications if methane is present.

- (a) By an increase in the height of the flame.
- (b) By a movement of the pointer rod along the scale.

FIG. 1—Illustrates the approved safety lamp with the bimetallic unit assembly and should be used as a guide for the installation of this unit in lamps already in service.

FIG. 2—Shows unit consisting of stainless steel mounting, bimetal coil, pointer rod, graduated glass chimney, metal banded scale, vented knob, slotted wick adjuster rod, wick holder and extra heaving wicking.

THE FOLLOWING PROCEDURE IN HANDLING IMPROVED WOLF FLAME SAFETY LAMPS IS RECOMMENDED WHEN TESTING FOR GAS:

1. With flame height adjusted to middle line of glass, let the lamp reach approximately constant temperature and flame height while going into the mine.
2. Before leaving fresh air, reset flame height with tip of flame exactly on the middle line of the glass.
3. Move scale until the pointer coincides with zero of the scale.
4. Proceed to place where test for methane is to be made. If methane is present, the lamp will give a double indication: (a) By an increase in the height of flame above the line of setting. (b) By a decided movement of the pointer to the right. In this observation, first note the change in height of flame and then the resulting movement of the pointer rod.
5. Recheck the lamp as to flame height when back in fresh air.

PROCEDURE WHEN TESTING FOR OXYGEN DEFICIENCY:

1. Let lamp reach normal temperature while going to the mine workings.
2. Before leaving fresh air, set tip of flame exactly on middle line of marked glass.
3. Move scale until pointer lines up with 2-inch mark on the scale.
4. Proceed to place where test for oxygen deficiency is to be made. If there is any considerable oxygen deficiency the lamp should give a warning as follows:
 - (a) By a change in the color of the flame.
 - (b) By a decrease in the height of flame below the line of setting.
 - (c) By a decided movement of the pointer to the left.
 - (d) If the oxygen deficiency is very bad, the lamp will go out and the air will not support life.

NOTE: The most suitable fuel to use in this lamp is Atlantic 70° Naphtha produced by the Atlantic Refining Company; obtainable either at Pittsburgh or Franklin, Pennsylvania.

When adapting the Bimetallic device to lamps already in service it is very essential to equip the fuel vessel with the complete wick assembly, as shown in figure 2. This change is required in order to provide a positive vent so that there will be no tendency to build up a pressure within the fuel vessel while the lamp is burning. The Bimetallic Unit is not applicable to flat burner lamps.

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COMPLETE BIMETALLIC UNIT FOR IMPROVED WOLF FLAME SAFETY LAMP

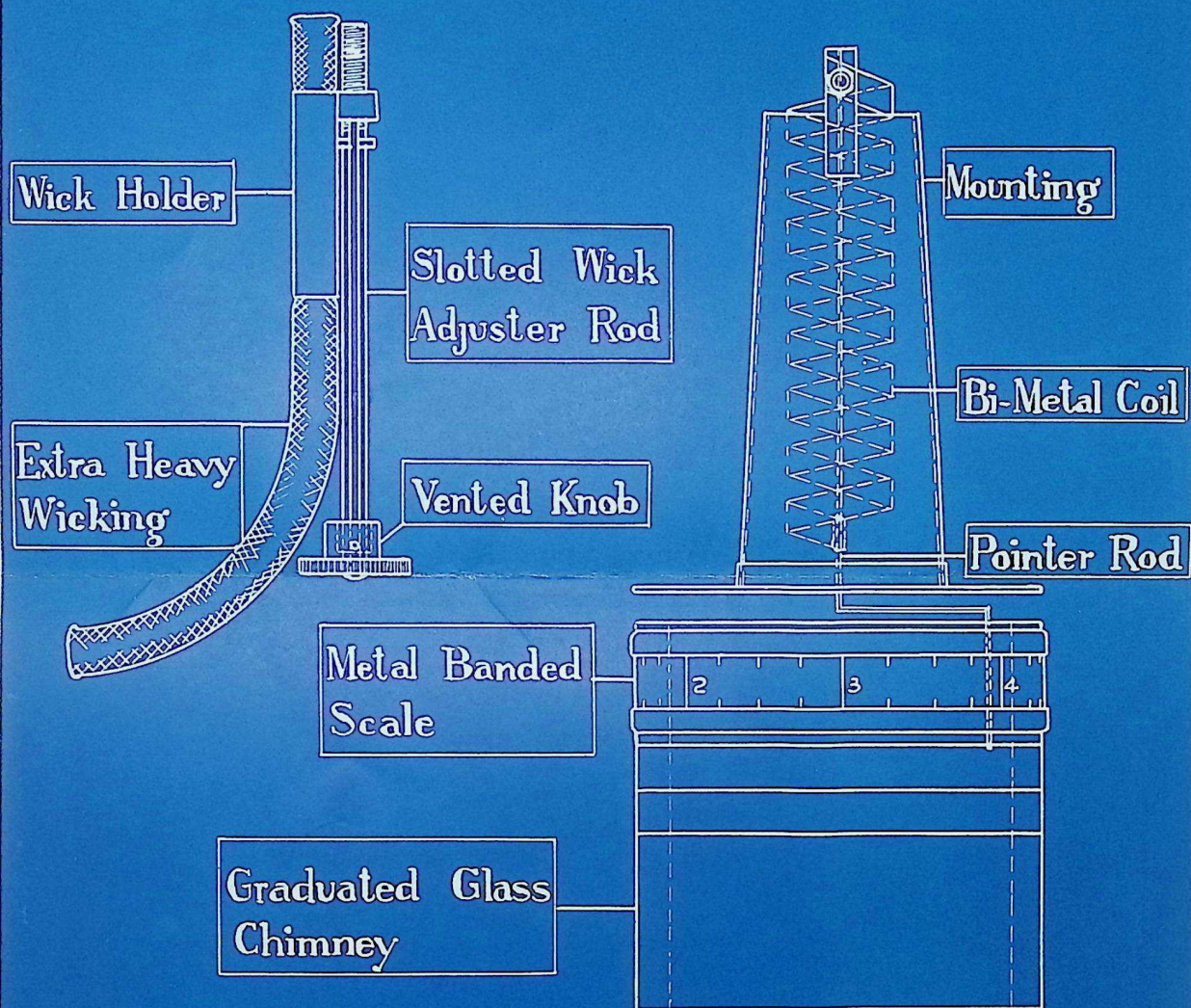


Fig. 2

Scale: Full Size

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Wolf Safety Lamp Company of America, Inc.

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BROOKLYN, NEW YORK

Distributors

Mine Safety Appliances Company

PITTSBURGH, PENNSYLVANIA