

A. E. POWELL.  
 INDICATOR FOR FURNACES, &c.  
 APPLICATION FILED MAR. 27, 1902.

NO MODEL.

Fig. 1.

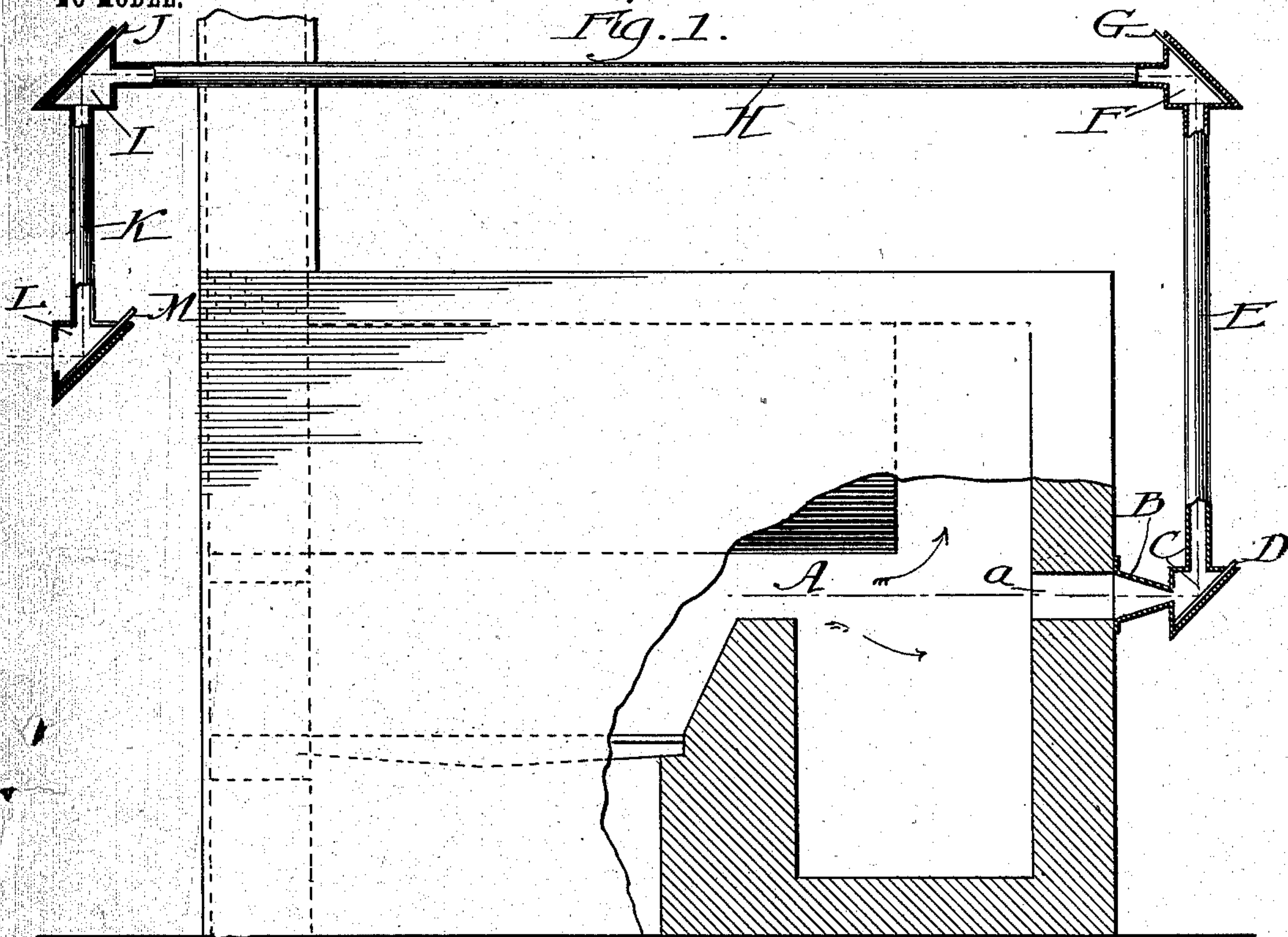
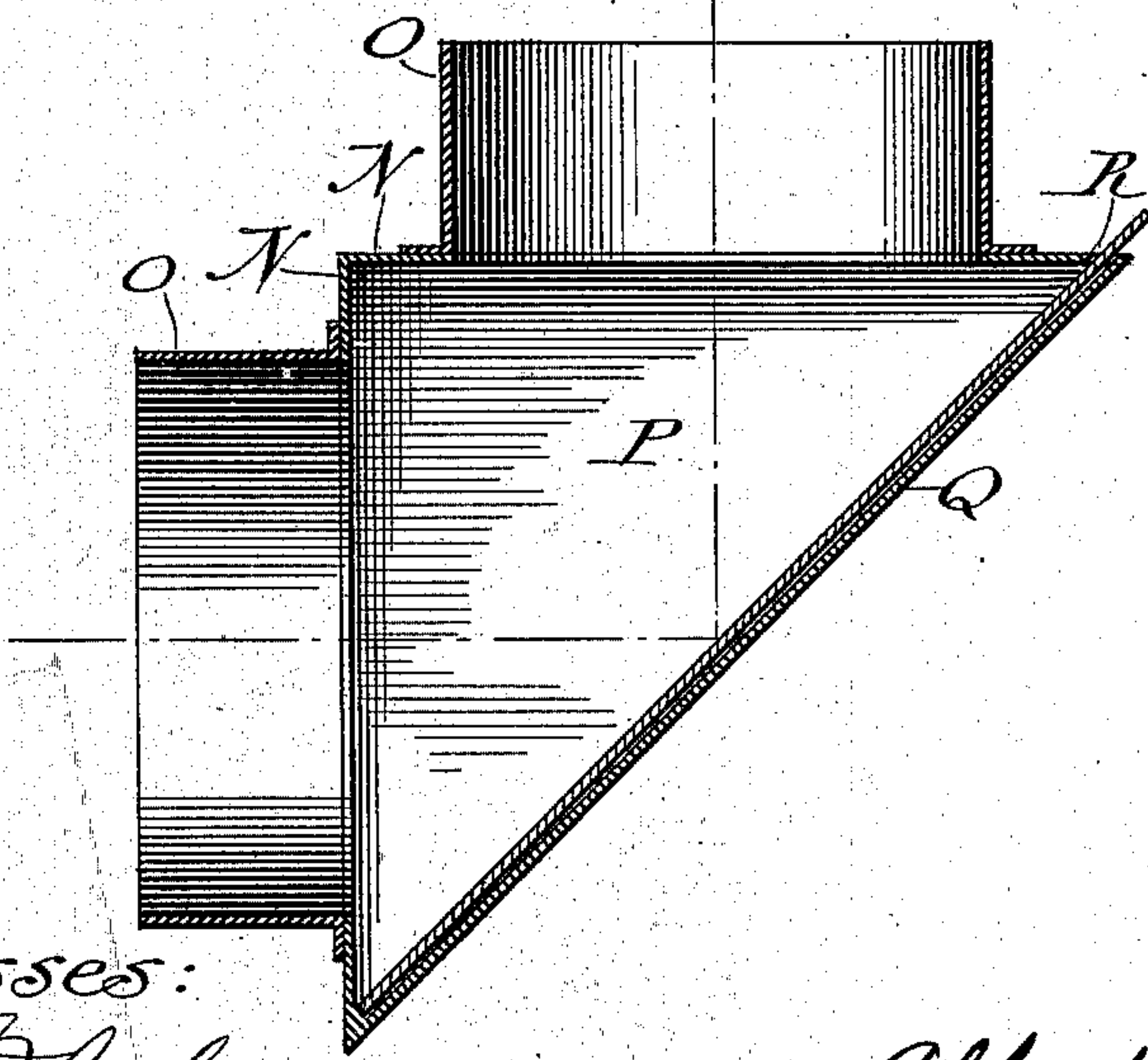


Fig. 2.



Witnesses:

Frank Blanchard  
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# UNITED STATES PATENT OFFICE.

ALBERT E. POWELL, OF MONMOUTH, ILLINOIS.

## INDICATOR FOR FURNACES, &c.

SPECIFICATION forming part of Letters Patent No. 723,303, dated March 24, 1903.

Application filed March 27, 1902. Serial No. 100,220. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. POWELL, a citizen of the United States, residing at Monmouth, in the county of Warren and State of Illinois, have invented certain new and useful Improvements in Indicators for Furnaces, &c., of which the following is a specification.

The present invention relates to a device by which the condition of the fire as viewed from the back or side of the furnace will be indicated or shown to the fireman while at his post in front of the furnace.

In carrying out my invention I make use of a system of reflectors so arranged with relation to each other that rays of light issuing from the interior of the fire-box will strike upon a reflector located directly in front of a suitable hole or opening through the wall of the furnace and be thereby reflected to the next reflector of the series, the last of which is at the front of the furnace or other point at which the indicator is to be observed.

The invention consists in the features of novelty that are hereinafter described with reference to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a vertical section of a furnace and of an indicator embodying the invention. Fig. 2 is a detail view of one of the reflector-boxes.

A represents the fire-box of a furnace, through the rear wall of which is a variable opening or peep-hole *a*. Extending from this peep-hole is a tube B, which opens into a box C, containing a reflector D, so arranged that the rays issuing from the fire-box through the peep-hole and tube will strike it. Extending from this reflector-box C squarely in the direction of reflection of the reflector D is a tube E, which enters a second box F, containing a reflector G, arranged to receive the rays coming from the reflector D. In like manner a tube H extends from the box F to a box I, containing a reflector J, and a tube K extends from this box I to a box L, containing a reflector M. This latter box is open, so that the attendant may see the reflector M, to which the rays issuing from the peep-hole are transmitted by the several reflectors, which

are arranged at angles appropriate to the end aimed at. The tubes connecting the several reflector-boxes may be of any diameter and length, and the mirrors may be in any relative positions or at any angles which may be necessary in order to enable the last reflector to be placed at the place at which the condition of the fire is to be indicated. As shown in the drawings, the reflectors are arranged for right-angle reflections, and each of the boxes is made of two sides N, arranged at right angles to each other and having openings surrounded by hollow spuds O, with which the connecting-tubes telescope, two triangular sides P, filling the angles formed by the sides N, and a diagonal side Q, which supports the reflector, one of the sides N being terminated some distance from the side Q to leave a slot R, through which the reflector may be inserted and removed.

I have described my invention in its use as an indicator for furnaces; but it is manifest that it may be used for many other purposes requiring the reflection of rays of light from point to point. In jails or other buildings it may be used for viewing the interior of a distant cell or room or other part of the building. It may be used to enable watchmen to view vaults, safes, &c., or the rooms containing them, in which case the last reflector of the series may be located on the outside of the building or in any other convenient place. It may be used for transmitting light into cellars or subterranean rooms or into the remote parts of rooms of considerable depth. In fact, it may be used wherever rays of light are to be transmitted indirectly from one point to another.

What I claim as new, and desire to secure by Letters Patent, is—

In a device of the class described, the combination of a series of reflectors arranged to reflect rays from one to another in succession, one of said reflectors being arranged directly opposite the peep-hole of the furnace, a triangular reflector-box for each of said reflectors, the said boxes having two sides, N, arranged at right angles to each other and provided with openings through them, hollow spuds, O, surrounding said openings, two triangu-

lar sides P, filling the angles formed by the  
sides N, a diagonal side, Q, which supports  
the reflector, one of the sides N being ter-  
minated some distance from the side Q so as  
5 to leave a slot R, through which the reflector  
may be inserted and removed, and tubes tele-  
scoping with the hollow spuds O and extend-

ing from one box to another, substantially as  
described.

ALBERT E. POWELL.

Witnesses:

S. W. ARBUCKLE,  
E. R. CALL.