

No. 667,489.

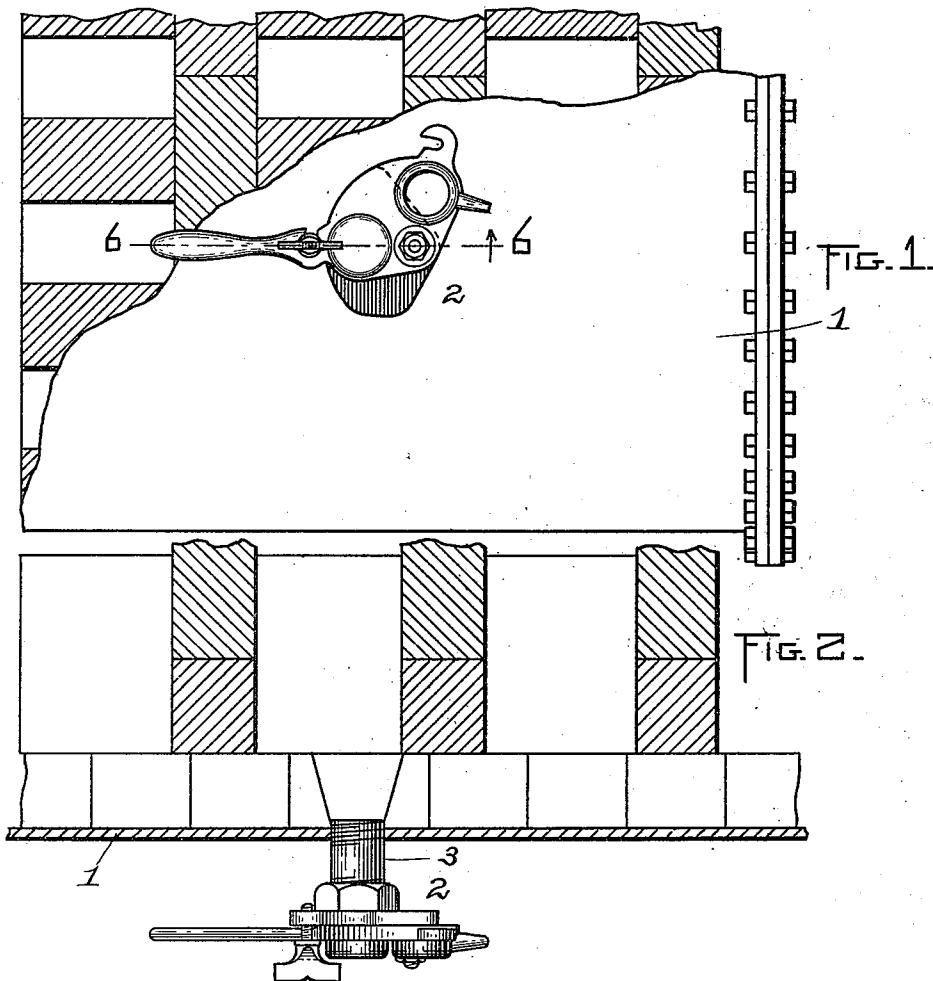
Patented Feb. 5, 1901.

G. S. BRAINERD.
SIGHT DEVICE FOR GAS APPARATUS.

(Application filed Aug. 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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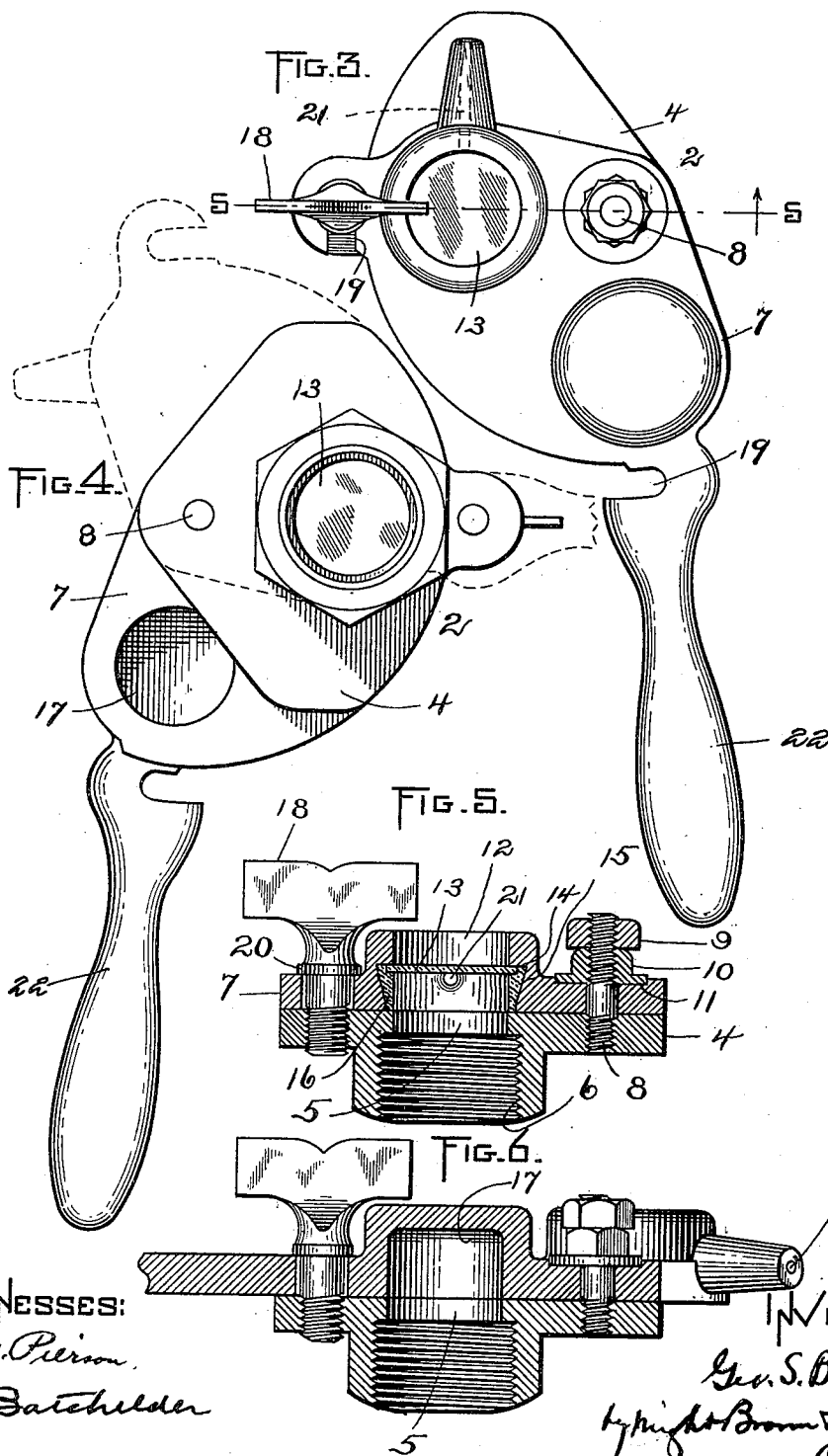
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

GEORGE S. BRAINERD, OF BOSTON, MASSACHUSETTS.

SIGHT DEVICE FOR GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 667,489, dated February 5, 1901.

Application filed August 14, 1900. Serial No. 26,855. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BRAINERD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sight Devices for Gas Apparatus, &c., of which the following is a specification.

This invention has for its object to provide an improved sight apparatus to be applied to a generator, carbureter, or superheater of gas apparatus, whereby the interior of said apparatus may be observed by the gas-maker and the temperature of the "heats" noted, and to be applied in other situations where it is desired to observe the interior of a heated receptacle or chamber.

The invention consists in certain novel features of construction and arrangement, which I shall now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation, with parts broken away and in section, of the superheater of a gas apparatus to which my invention is applied. Fig. 2 represents a horizontal section thereof. Fig. 3 represents an enlarged front elevation of the sight device with its movable plate in another position from that represented in Fig. 1. Fig. 4 represents a rear elevation with the parts in said position. Fig. 5 represents a section on line 5 5 of Fig. 3. Fig. 6 represents a section on line 6 6 of Fig. 1.

The same reference characters indicate the same parts in all the figures.

In the drawings, 1 represents a chamber or receptacle, such as the superheater of a gas apparatus, the interior of which is adapted to be observed by employment of my improved sight device.

2 represents the sight device, which is shown as screwed on the outer end of a pipe or nipple 3, secured in the wall of chamber 1. The sight device, as shown, comprises a fixed plate 4, having a sight-aperture 5, the inner end of which is made in the form of a screw-threaded socket 6, adapted to be screwed on the end of the nipple 3 and externally formed to be engaged by a wrench or similar tool, and a movable plate or disk 7, pivoted to the fixed plate 4. The outer face of plate 4 and the inner face of plate 7 are faced off, preferably true and flat, to form sliding surfaces,

which will permit the movement of the movable plate from one of its positions to the other without permitting the escape of gas from the receptacle 1 to the atmosphere between the plates. The pivotal connection between the plates comprises a stud 8, fixed in the plate 4 and projecting from one side thereof, the projecting part having, as shown, a smooth inner portion, on which the plate 7 turns, and a threaded outer portion, on which are mounted two nuts 9 10, the inner nut 10 acting as an adjuster to regulate the pressure between the plates 4 and 7 and having a broadened or flanged inner face 11, which bears on a seat faced off flat on the plate 7, the outer nut 9 acting as a lock-nut for the nut 10 and bearing on said nut 10.

The movable plate 7 has a sight-aperture 12, adapted to be thrown by movement of said plate into and out of register with the sight-aperture 5 in plate 4, said apertures being at an equal radial distance from the axis of the pivotal connection. The aperture 12 is provided with a transparent closure 13, of glass or mica, supported by a shoulder 14, which forms one end of an annular recess 15, and retained in place by an annular seal or filling 16, of refractory cement, occupying the recess 15. This construction avoids the use of an annular retaining ring or nut. At a radial distance from the pivotal axis equal to the radial distance therefrom of the sight-aperture 12 is a pocket 17, formed by recessing the inner face of the movable plate 7, said pocket being adapted to be thrown into register with the sight-aperture 5 when the aperture 12 is moved out of register therewith. This position of the parts is represented in Fig. 6 and represents the normal position of the movable plate.

When it is desired to observe the interior of the receptacle, plate 7 is thrown to the position represented in Figs. 3, 4, and 5, in which the two sight-apertures register. The recess 17 when in register with aperture 5 prevents the direct impingement of the flame or heat from the interior of receptacle 1 against the sliding surface of the movable plate 7, and said recess also serves as a pocket for the lodgment of grit or dirt which might otherwise get between the plates. The sliding surfaces are accordingly saved from cutting

or abrasion, which would soon destroy the close fit between them. 18 is a thumb-screw mounted on the fixed plate 4, and 19 19 are notches in the movable plate 7, into which the shank of the thumb-screw 18 enters when the said movable plate is moved from one of its positions to the other. The abutment of the ends of said recesses against the thumb-screw serves to stop the movable plate in its proper position, with either the sight-aperture 12 or the recess 17 in register with the fixed sight-aperture 5. By turning the thumb-screw a shoulder 20 on its shank may be brought down against the movable plate 7, so as to clamp it in either of its positions. 22 is a handle for moving plate 7.

The plates 4 7 are so related that when the sight-aperture 12 is thrown into register with the sight-aperture 5 the recess 17 is exposed beyond the edge of the plate 4, as represented in full lines in Fig. 4, thereby permitting said recess to be reached to clean or wipe out any collection of sediment therein. When the movable plate is thrown to the opposite position, as represented in dotted lines in Fig. 4, the inner mouth of the sight-aperture 12 will then be exposed beyond the edge of plate 4, so as to permit the inner side of the transparent closure 13 to be cleaned. The distances between the edges of plate 4 and the sight-aperture 5 on the arc of movement of the aperture 12 and recess 17 are greater than the width of said aperture and recess, so as to prevent the continuous escape of gas at any time from the interior of receptacle 1 to the atmosphere by way of said aperture or recess. Provision is, however, made for the escape of a small quantity of gas when the sight-apertures are thrown into register, said provision, as shown, consisting of a small opening or duct 21, leading to the atmosphere from the sight-aperture 12 inside of the closure 13. This outlet permits the illuminating qualities or temperature of the gas in receptacle 1 to be tested.

I claim—

1. A sight device comprising a sight-apertured sliding-surfaced fixed plate, and a superposed sight-apertured sliding plate having a recess or pocket on its sliding face adapted to register with the sight-aperture in the fixed plate when the sight-apertures

are out of register, to protect the sliding surfaces.

2. A sight device comprising a sight-apertured fixed plate, a superposed plate having a sight-aperture provided with a transparent closure and adapted to be thrown into and out of register with the sight-aperture in the fixed plate, the movable plate being constructed to slide on the fixed plate from its registering to its non-registering position, without uncovering the aperture of the latter.

3. A sight device comprising a sight-apertured sliding-surfaced fixed plate, a superposed sight-apertured sliding plate having a recess or pocket on its sliding face adapted to register with the sight-aperture in the fixed plate when the sight-apertures are out of register, to protect the sliding surfaces, the plates being so constructed and arranged that movement of the recess out of register with the sight-aperture in the fixed plate exposes the recess.

4. A sight device comprising a sight-apertured fixed plate, a superposed sight-apertured movable plate having two separated open-ended slots, and a combined stopping and clamping screw having a stem adapted to enter said slots and limit the movements of the movable plate, and a shoulder adapted to be screwed down against the movable plate to retain it in its registering and non-registering positions.

5. A sight device comprising a sight-apertured fixed plate, a superposed sight-apertured movable plate, and a gas-outlet carried by the movable plate and opened by the movement of throwing the sight-apertures into register.

6. A sight device comprising a sight-apertured fixed plate, a superposed movable plate having a sight-aperture provided with a transparent closure, the said aperture and its closure forming a pocket on the inner side of the movable plate, and a gas-outlet leading from said pocket to the atmosphere.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEORGE S. BRAINERD.

Witnesses:

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C. F. BROWN.