

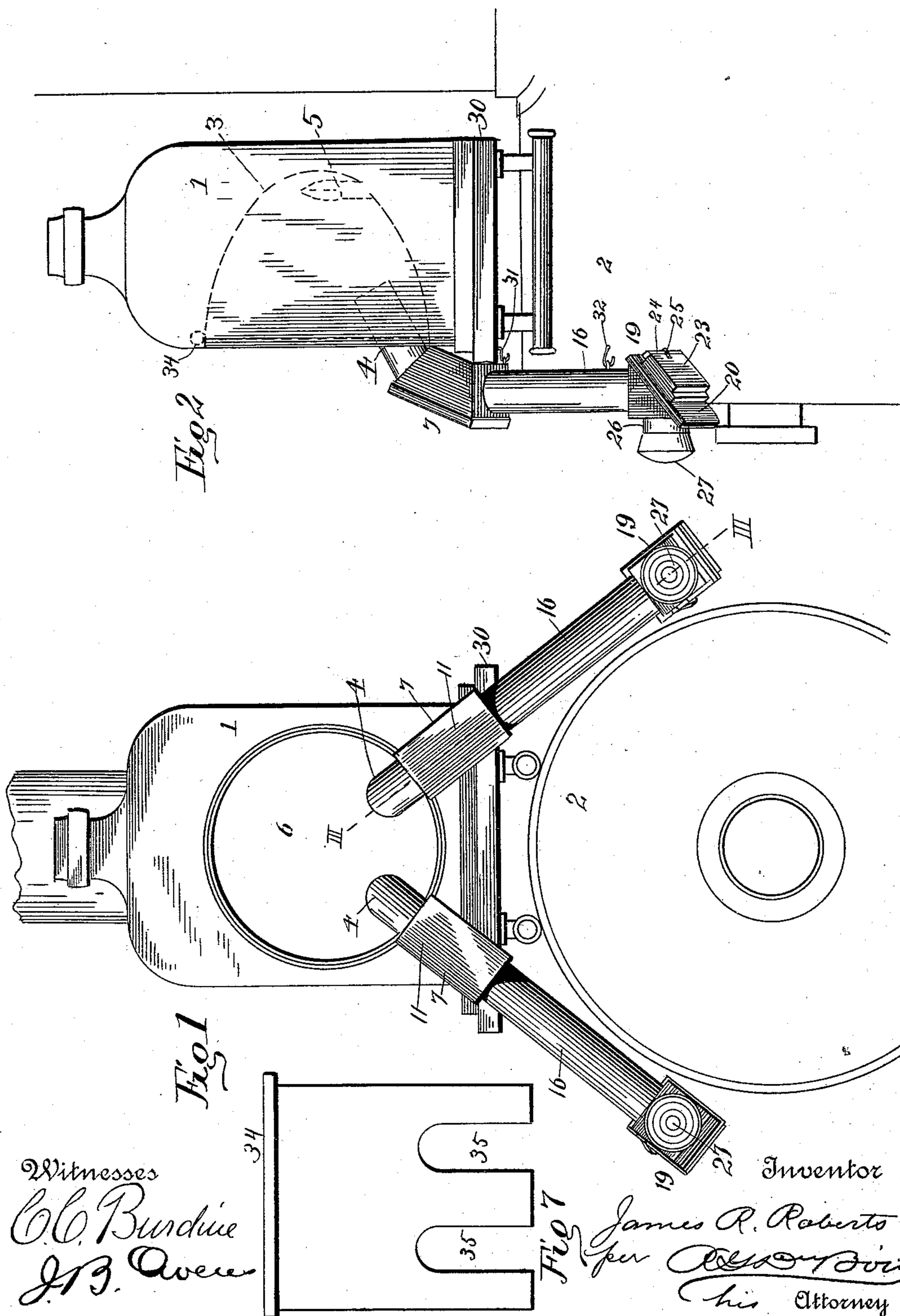
(No Model.)

2 Sheets—Sheet 1.

J. R. ROBERTS.
SIGNAL LIGHT FOR LOCOMOTIVES.

No. 543,354.

Patented July 23, 1895.



Witnesses
C. C. Burdick
J. B. Owen

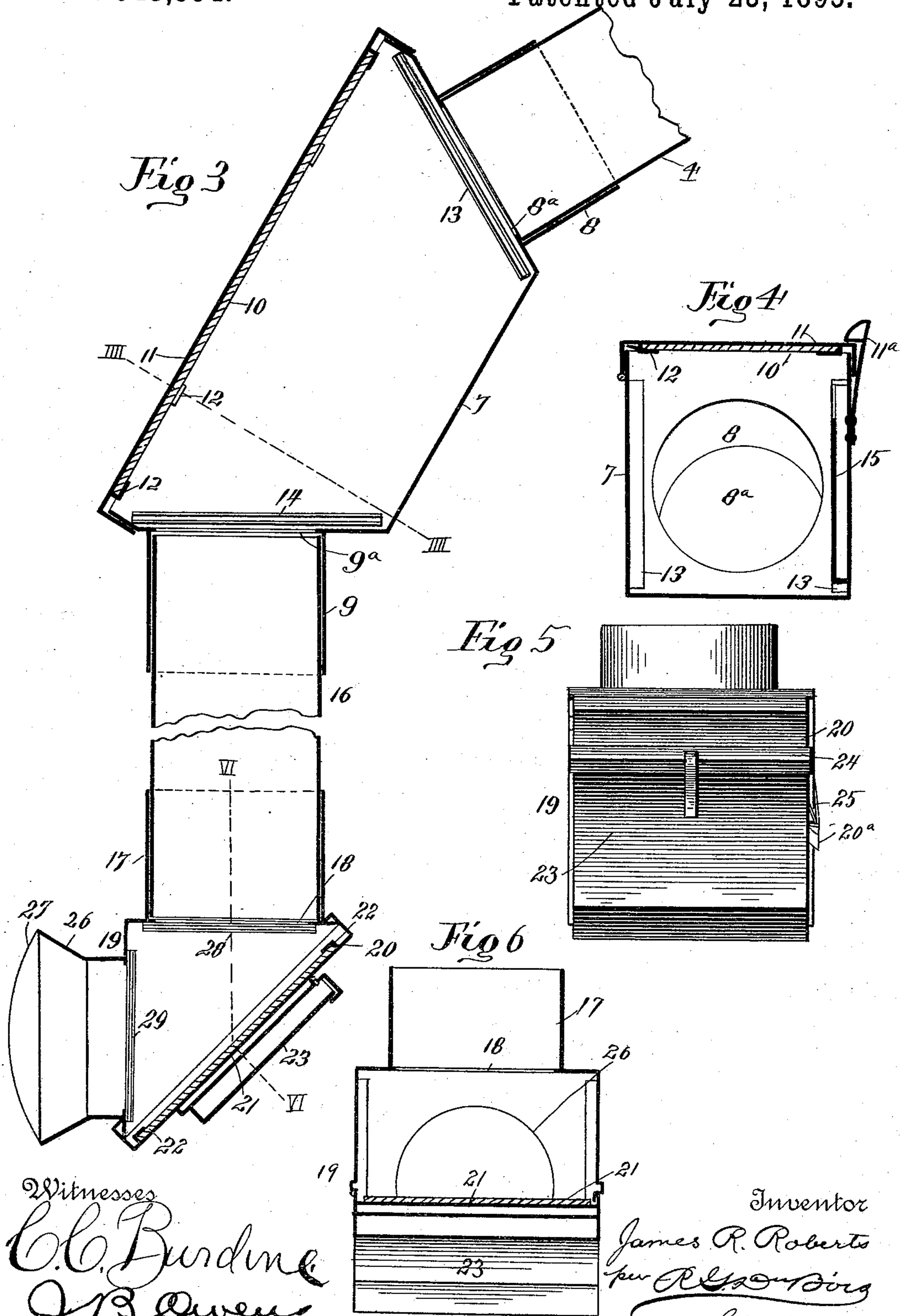
Fig 7

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James R. Roberts
per *Alfred J. Davis*
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2 Sheets—Sheet 2.

No. 543,354.

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Witnesses
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UNITED STATES PATENT OFFICE

JAMES RUSSELL ROBERTS, OF KEOKUK, IOWA.

SIGNAL-LIGHT FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 543,354, dated July 23, 1895.

Application filed April 30, 1891. Serial No. 391,143. (No model.)

To all whom it may concern:

Be it known that I, JAMES RUSSELL ROBERTS, a citizen of the United States, residing at Keokuk, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Signal-Lights for Locomotives; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in signals, and particularly to the construction and arrangement of the side signals carried at the front of engines.

The signals at the front of the engines are for the purpose of notifying trainmen, engineers, bridge, station, and section men, who are met or passed as the train proceeds, as to the class of the train carrying them or the trains following them.

My invention consists essentially in utilizing the light from the headlight-lamp by permitting it to pass through tubing and be reflected through the lens of a signal-light box, which latter is located at any desired distance below the headlight on the smoke-box well forward in the dark shadow between the headlight and the pilot-beam; and my invention further consists in certain features of construction and combinations of parts to be hereinafter described and then particularly pointed out in the claim.

In order that my invention may be fully understood I will now proceed to describe the same with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of the upper portion of a locomotive-engine, showing my improvements applied thereto. Fig. 2 is a side view thereof. Fig. 3 is an enlarged longitudinal section on line III III, Fig. 1. Fig. 4 is a section on line IV IV through the reflector-box, Fig. 3. Fig. 5 is a rear view of the signal-light box. Fig. 6 is a section on line VI VI through the latter, Fig. 3. Fig. 7 is a detail view showing a curtain.

The headlight 1 is secured to the smoke-box 2 of the engine as usual, and is provided with the customary reflector 3.

4 is a tube which leads into the headlight-box, so that the light from the lamp 5 will

shine directly into it. This tube 4 enters the headlight-box to one side of the bottom of the glass face 6. One of these tubes is located at each side of the headlight and they extend in inclined position outwardly.

A trapezoidal-shaped box 7 is provided at each oblique end with annular flanges 8 and 9 that surround circular openings 8^a and 9^a. The flange 8 connects the box 7 to the lower end of the tube 4, solder being applied to form a permanent connection. For convenience I will hereinafter term this box a "reflector-box," as it is provided with a glass reflector 10, secured to the under side of the hinged front lid 11 by means of clips or fingers 12. The lid 11 fits tightly on the reflector-box, and is secured thereon by a spring-catch 11^a.

Just inside of each end of the reflector-box are parallel guides 13 and 14, respectively, the former being at the upper end and the latter being at the lower end. These guides are adapted to receive slides of different colors or a blind-slide. At one side of the inside of the reflector-box is a pocket 15, which is adapted to hold the slides.

The flange 9 connects the tube 16 to the reflector-box 1, and is securely held thereto by solder. This tube 16 is soldered at its outer end to an annular flange 17, surrounding an opening 18 in the top of the signal-light box 19. This box is triangular in section, and its inclined back consists of a tightly-fitting hinged door 20, held closed by a spring-catch 20^a, and on the inner side of which is the inclined reflector 21, secured thereto by clips or fingers 22. At the back of the door is a pocket 23, closed by a hinged lid 24, which is fastened by a spring-catch 25. This pocket is adapted for holding the slides.

The lens-tube 26 projects from the front of the signal-light box directly in front of the inclined reflector 21, and it is provided with a bull's-eye glass or lens 27 at its outer end.

Inside of the signal-light box at the top and front are parallel guides 28 and 29 respectively. These guides are also adapted to receive slides.

The tubes are held to the pan 30, on which the headlight rests, by clamps or fastenings 31 and to the smoke-box 2 by clamps or fastenings 32.

The insides of the tubes and the reflector

and signal-light boxes are painted with white varnish, so as to give a more brilliant reflection and prevent rust from dampness, and their outsides are painted black.

5 A curtain 33 is employed with the headlight on many roads for the purpose of hiding the light when the trains are on side tracks, said curtain being adapted to be rolled upon a roller 34 at the top of the headlight. In
10 order that the rays of light through the bull's-eye will not be cut off when the curtain is down the lower corners of the curtain are provided with notches or openings 35 that come opposite the inner ends of the tubes 4.

15 By arranging the reflectors, as shown, it will be seen that light from the headlight will be conducted through the tubing and by the reflectors and signal-light boxes out through the bull's-eye by reflection. If no slide is in position the light reflected will be white, and
20 according to the color (such as red, blue, or green) of the slide in position in either of the guides 13, 14, 28, or 29, so will be the color of the light transmitted through the bull's-eye.
25 The light transmitted through the bull's-eye can be seen for a long distance as the engine approaches. The rays taken from the headlight are sufficient to light the signals with a perfect glow, making a superior and efficacious signal-light.
30

I am aware that it has before been proposed to conduct the light from a central lamp and transmit it through the glass or bull's-eyes of side signals, but such side signals have been
35 placed on the headlight in line therewith and so close to the glare of the headlight that their

light is lost in the greater light; but my invention differs mainly from such as these in that the signal-lights are placed so far below and under the face of the headlight in the
40 usual dark shadow that their light is not lost in the greater glare in front of the face of the headlight, but is rather increased by the extreme dark line between the upper glare of the headlight and the reflection of the same
45 on the track just ahead of the pilot.

In the claim I refer to "outwardly-inclined downwardly-extending" or "downwardly-extending" tubular conduits, meaning all that is located between the lower and upper ends
50 of the tubes.

Slight changes in the details of construction will readily suggest themselves to skilled mechanics without departing from the spirit and scope of my invention.
55

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with the headlight of a locomotive, of a downwardly extending tubular
60 conduit leading from the headlight, and a signal-light box at the lower end of the conduit located so as to appear in the dark shadow between the headlight and pilot-beam, substantially as described.
65

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

JAMES RUSSELL ROBERTS.

Witnesses:

J. F. CULBERTSON,
I. N. TICHENOR.