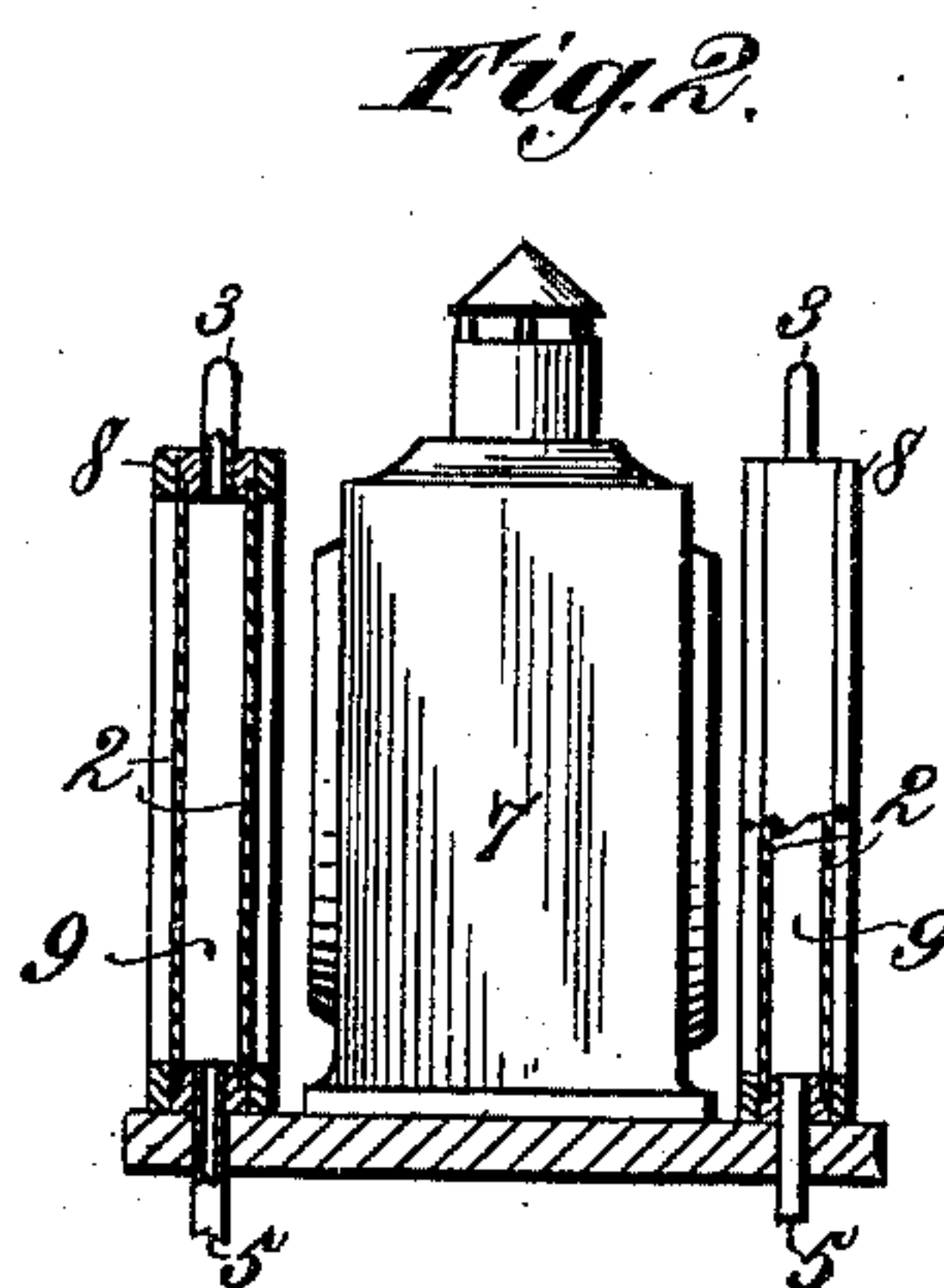
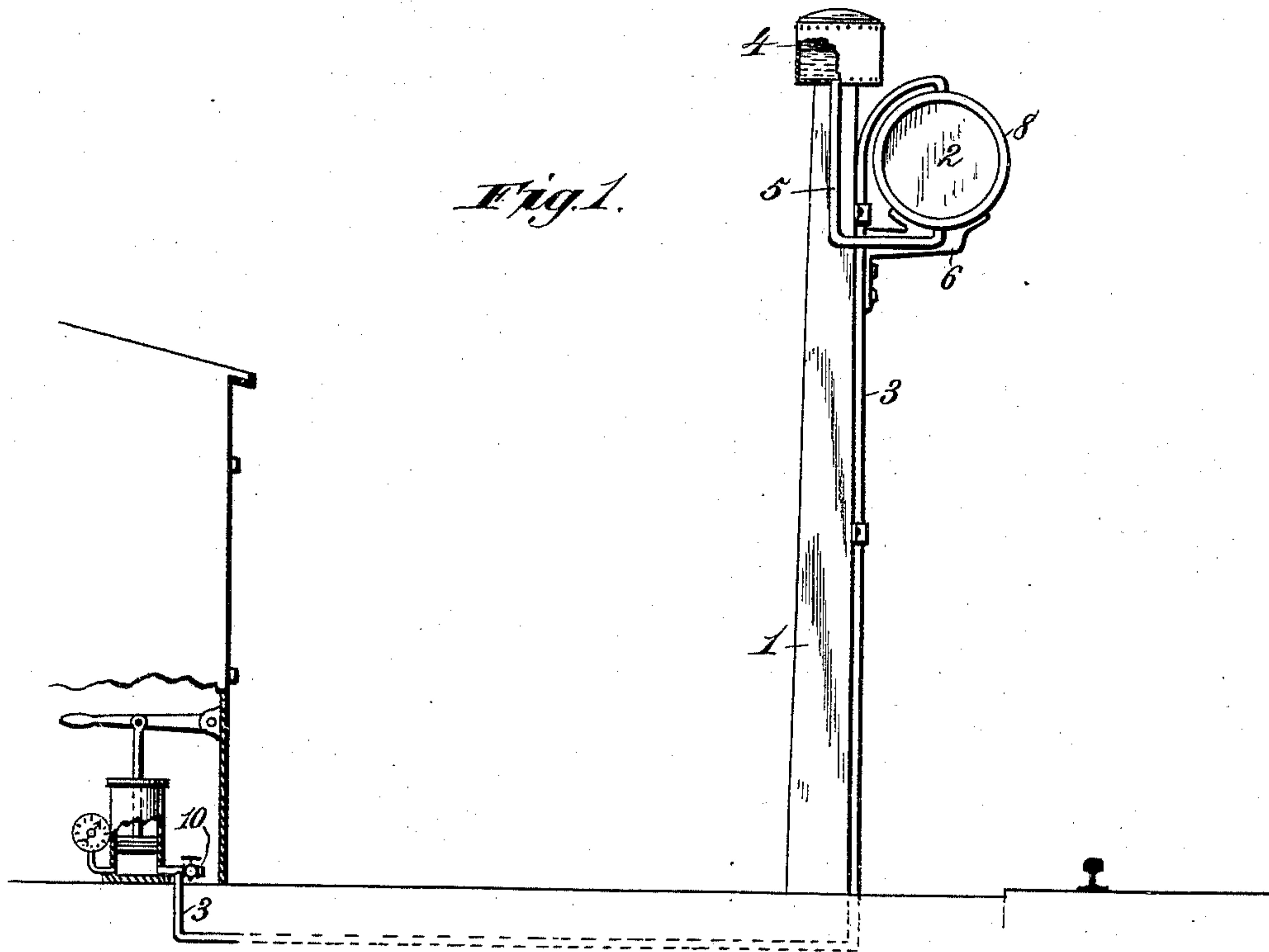


(No Model.)

J. M. BROHARD.
SIGNALING APPARATUS FOR RAILWAYS.

No. 445,918.

Patented Feb. 3, 1891.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH M. BROHARD, OF CLARKSBURG, WEST VIRGINIA.

SIGNALING APPARATUS FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 445,918, dated February 3, 1891.

Application filed October 23, 1890. Serial No. 369,114. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. BROHARD, a citizen of the United States, residing at Clarksburg, in the county of Harrison and State of West Virginia, have invented certain new and useful Improvements in Railway-Signals, of which the following is a full, clear, and exact specification.

This invention has for its object to provide novel, simple, efficient, and economical means for signaling trains from a suitable station beside or near the track through the medium of a colored liquid which can flow into and out of a transparent signal-vessel.

To such end my invention consists, essentially, in the combination in a railway-signal of a fixed signal-post arranged beside the track and having a bracket or support, a transparent signal-vessel carried by the bracket or support, a colored-liquid-holding tank supported by the signal-post, a tube connecting the tank with the signal-vessel for the flow of a colored liquid from the tank to the signal-vessel and conversely, and a tube leading to a station beside or near the track where it is provided with means for forcing air therethrough and thus cause the colored liquid to flow from the signal-vessel into the tank, as will more fully hereinafter appear.

In the accompanying drawings, Figure 1 is a sectional side elevation of my improved railway signal apparatus, and Fig. 2 is a detail sectional elevation looking from the track toward the signal-post.

In order to enable those skilled in the art to make and use my said invention, I will now proceed to describe the same in detail, reference being made to the accompanying drawings, where—

The reference-numeral 1 indicates an upright signal-post fixed in a stationary position beside the track and provided at one side with a laterally-projecting bracket or support 6, on which are sustained a pair of transparent signal-vessels 2, located at such distance apart as to receive between them a lantern 7 for the purpose of illumination at night.

The signal-vessels are each composed of a suitable surrounding-frame 8 and two circular or other suitably-shaped plates 2, of transparent substance, such as glass, separated

from each other a sufficient distance to provide an interior chamber 9 for receiving a colored liquid.

A tank 4 is supported by the signal-post at a suitable distance above the signal-vessels and is adapted to receive and hold the liquid, which may be of any suitable color, such as red and green, for conveying the required intelligence to engineers of trains running upon the track. The lower portion of the tank is connected by tubes or pipes 5 with the lower portion of the signal-vessels, as more clearly illustrated in Fig. 2, in such manner that the colored liquid within the tank can flow by gravity into and fill the chambers 9 of the signal-vessels.

The top or upper portions of the signal-vessels are connected with tubes or pipes 3, which lead to a suitable station beside or near the track, where such tubes are provided with suitable means for forcing air therethrough into the signal-vessels.

In the example shown the air-forcing means is composed of an air-pump having a valve 10, whereby the air may be permitted to escape from the signal-vessels and thus permit the colored fluid to flow from the tank into such vessels, while by closing the valve and operating the air-pump the signal-vessels will be supplied with the required quantity of air to force the colored liquid back through the tubes 5 into the tank 4.

The arrangement of signal-vessels illustrated by Fig. 2 is desirable in that it enables me to employ a lantern or lamp for illuminating the signal-vessels for the night, whereby the signal is as effective by night as during the day.

By my invention I provide a colored-liquid signal apparatus which is simple, effective, and very economical in construction, in that no complicated operative mechanism is required, while any simple contrivance can be utilized for the introduction of air into the air-conducting pipes 3, and this is advantageous in that it materially simplifies the apparatus.

Having thus described my invention, what I claim is—

1. A railway signaling apparatus consisting of a fixed signal-post arranged beside the track and having a bracket or support, a trans-

parent signal-vessel carried by the bracket or support, a colored-liquid tank supported by the signal-post, a tube connecting the interior of the tank with the interior of the signal-vessel for the flow of the colored liquid from one to the other, and an air-forcing tube or pipe leading to a station beside or near the track for conducting air and causing the colored liquid to flow from the signal-vessel into the tank, substantially as described.

2. A railway signaling apparatus consisting of a fixed signal-post arranged beside the track and having a bracket or support, a transparent signal-vessel carried by the bracket or support, a colored-liquid tank supported by the signal-post above the signal-vessel, a tube connecting the lower portion of the tank with the upper portion of the signal-vessel for the gravitation of the colored liquid from the tank to the signal-vessel, and a tube leading from the top portion of the signal-vessel to a station beside or near the track for conducting air into the top portion of the signal-ves-

sel and thereby expelling the colored liquid therefrom and causing it to flow back into the tank, substantially as described.

3. A railway signaling apparatus consisting of a fixed signal-post arranged beside the track, a pair of separated transparent signal-vessels supported by the signal-post and adapted to receive between them a lantern or lamp for night illumination, a colored-liquid tank carried by the signal-post, tubes connecting the interior of the signal-vessels with the interior of the tank, and tubes leading to a station beside or near the track for conducting air which causes the colored liquid to flow from the signal-vessels into the tank, and conversely, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in the presence of two subscribing witnesses.

JOSEPH M. BROHARD. [L. S.]

Witnesses:

BENJ. F. HORNOR,

THOMAS E. CALMBERIC.