(No Model.)

W. O. FINE.

HEADLIGHT SIGNAL ATTACHMENT.

No. 406,717. Patented July 9, 1889.

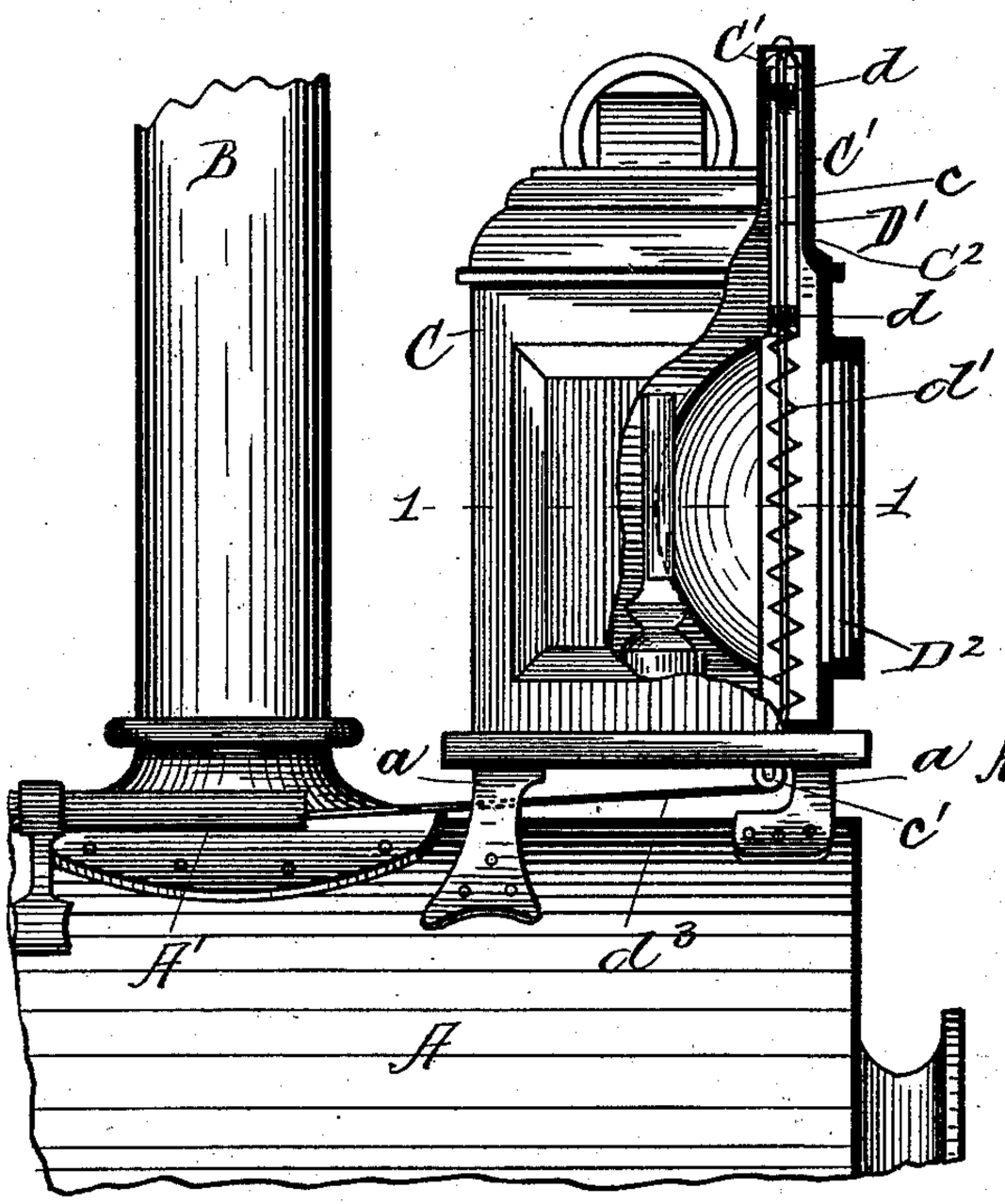

Fig 1

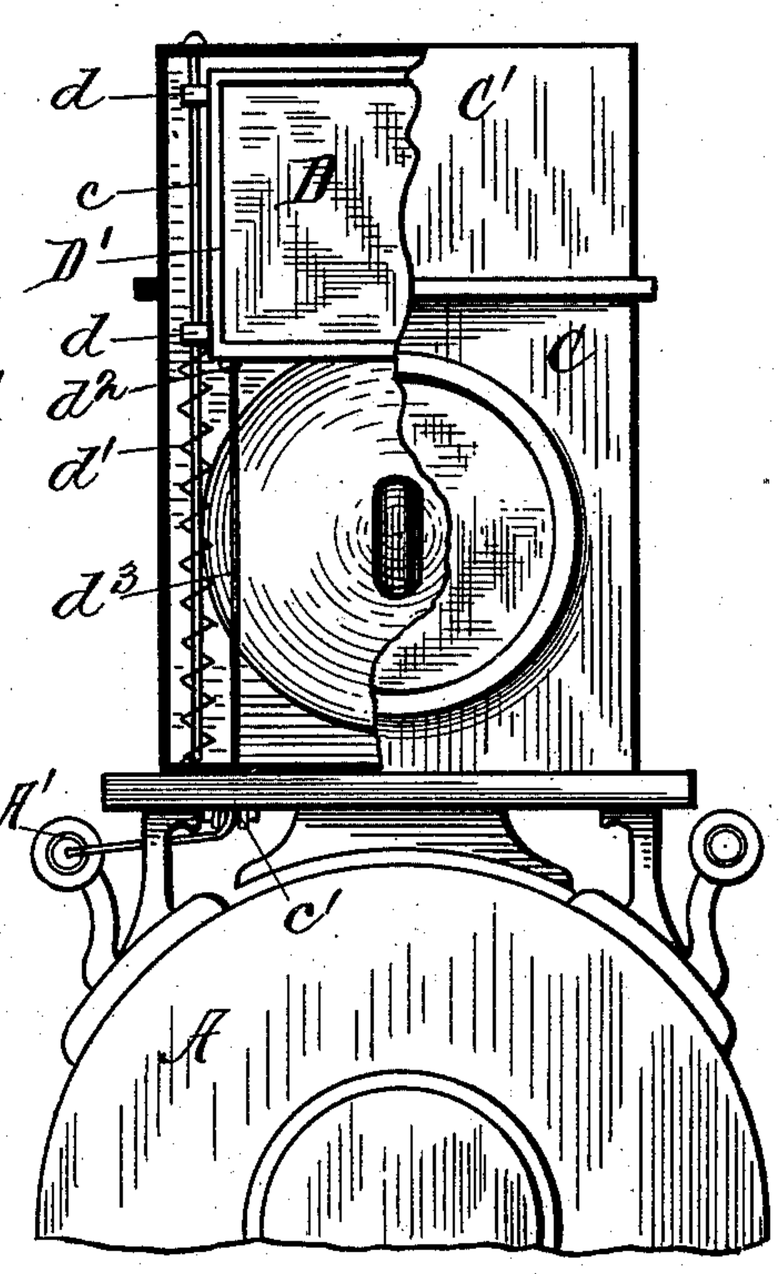

Fig 2

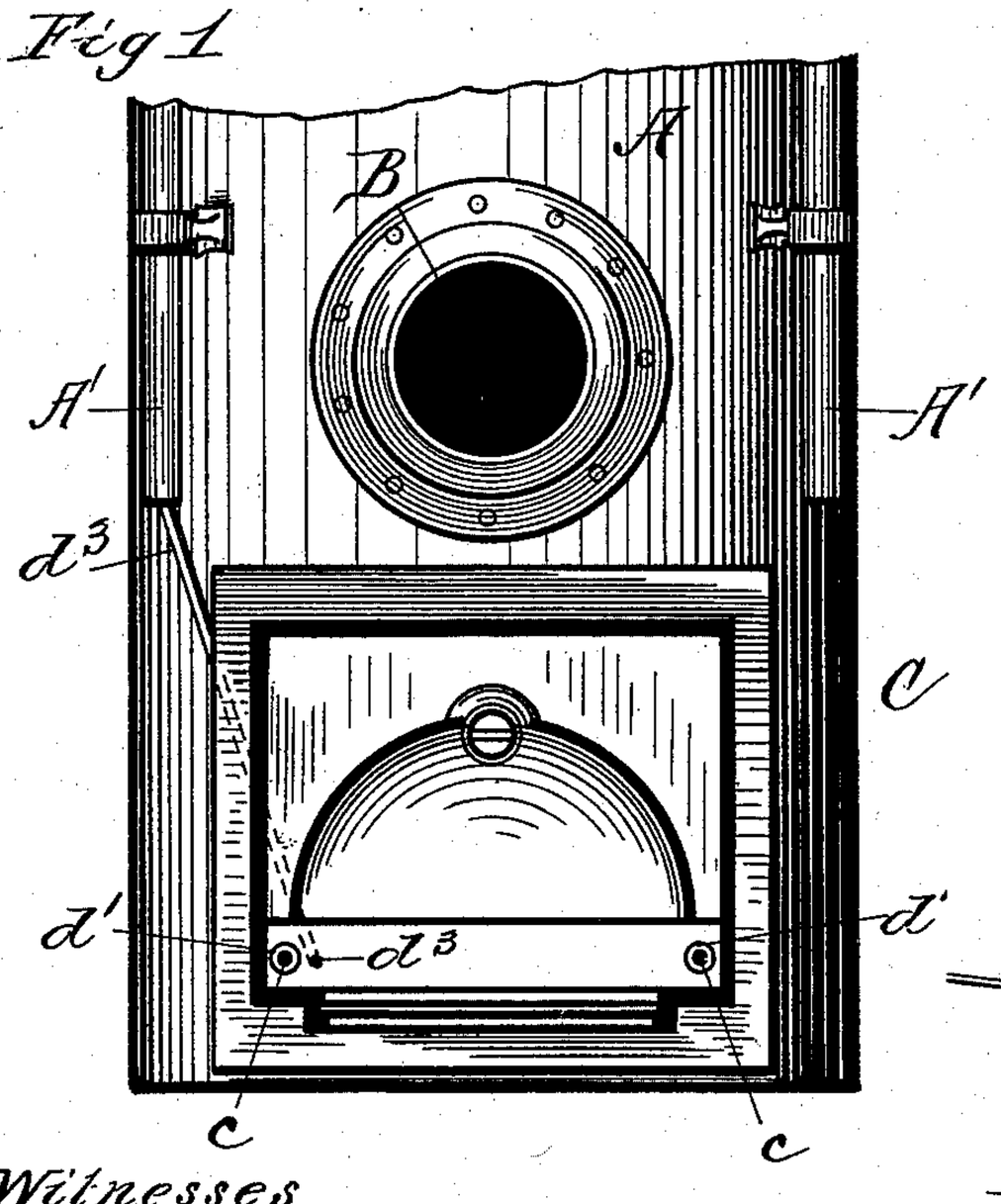

Fig 3

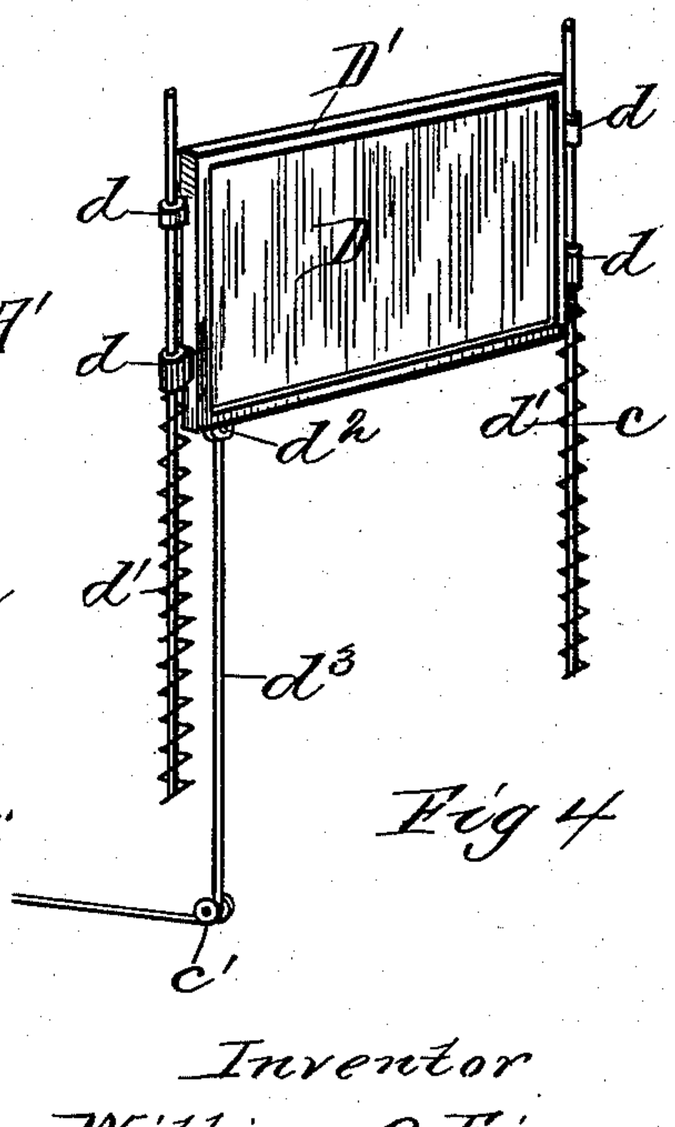

Fig 4

Witnesses
W. C. Corlies
Walter Hurlburt.

Inventor
William O. Fine
By E. C. Crawford,
Atty

UNITED STATES PATENT OFFICE.

WILLIAM O. FINE, OF MORELAND, ASSIGNOR OF ONE-THIRD TO MARTHA TORSELL, OF CHICAGO, ILLINOIS.

HEAD-LIGHT SIGNAL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 406,717, dated July 9, 1889.

Application filed January 31, 1889. Serial No. 298,296. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. FINE, a citizen of the United States, residing at Moreland, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Locomotive-Head-Light Signal Attachments, of which the following is a specification.

My invention relates to railway signal-lights; and its object is to provide a signal which can be operated at the front end of the train by the engineer without leaving the cab of his engine. This object is accomplished by means of a colored glass dropped in front of the flame of the head-light lamp, so as to completely change the white light of the same into colored light.

I attain my object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a head-light casing secured to the smoke-arch of the locomotive, and partly broken away to show the internal construction of my improved head-light signal attachment. Fig. 2 is a front elevation of the same, showing the head-light partly broken away. Fig. 3 is a detail plan section of the head-light, taken on the line 1 1 of Fig. 1; and Fig. 4 is a detail perspective view of the head-light signal attachment.

Like letters refer to like parts throughout the several views.

In the drawings, A is the smoke-arch of a railway-locomotive, B the smoke-stack, and C the head-light casing of the same.

A′ is a hollow hand-rail, secured at its front end to the bracket *a*, attached to the smoke-arch.

D is a colored glass, secured in the frame D′, and *d d d d* are lugs secured to the frame, two to each of its opposite sides, each lug having a hole made through it, the holes in the respective pairs of lugs being in a common vertical line.

D^2 is the white glass of the head-light.

A slot C^2 is cut in the head-light casing, a little distance back of the plane of the white glass and parallel to it, of such dimensions that it will permit the frame D′ with its lugs to pass through it. Rods *c c* are secured in any suitable manner to the floor of the head-light casing, so as to pass up vertically through the slot and through the holes in the lugs *d*.

C′ is a chamber inverted over the slot and secured to the head-light casing. This chamber is of sufficient capacity to receive the frame D′ with its lugs.

The upper ends of the rods are secured in any suitable way to the top of the chamber, and *d′ d′* are spiral springs encircling the rods and confined between the lower lugs *d* and the bottom of the head-light casing. These springs are of such length and strength that when acting freely they will lift the glass and frame into the chamber C′ and sustain them there.

d^2 is a lug secured to the bottom at one corner of the frame D′.

d^3 is a cord secured in any suitable manner to the lug d^2.

c′ is a pulley secured beneath the head-light casing directly under the lug d^2. The cord passes under the pulley and back through the hand-rail A′ into the cab of the locomotive.

The method of operating the mechanism and its usefulness are obvious. When it is necessary to give a colored-light signal, the engineer pulls the cord d^3 until the frame D′ is drawn down to the bottom of the head-light casing. Thus the colored glass D is brought between the flame of the light and the white glass D^2, when of course a colored instead of a white light will be shown.

The color of the glass used may be any color adopted by any railway to denote a full stop. Red is the color now in use to indicate generally the presence of danger, and particularly to notify approaching trains that they must come to a full stop before reaching such light.

Some of the advantages of my invention are that it will dispense with the necessity of sending brakemen or others ahead of trains to give the full-stop signal, thus diminishing the chances of personal injury to employés, and the chances of death and damage from collisions will be greatly diminished, because such a light, produced by the focalized rays of the head-light, can be seen many times as far as the light of a common signal-lantern.

This will be an especial advantage when a train is approaching on a long downgrade.

My invention will be especially useful on double-track roads where no passenger-train is permitted to pass another that is stopping at a station, as the engineer of the stopping train lets down the colored glass the instant he stops, thus avoiding all delay in displaying the full-stop signal, as well as all chances that its display may be omitted; and my invention can be employed to give other than the full-stop signal. A code of signals for different purposes can be formed to be given by raising and lowering the colored glass a stated number of times.

It is obvious that the construction of the above mechanism may be varied in some particulars without essentially changing my invention. For instance, by making suitable connections the frame and colored glass can be operated outside of the head-light casing in front of instead of behind the white glass. U-shaped instead of spiral springs can be used, and rods with a pivoted knee-connection can take the place of the cord.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with the head-light casing of a railway-locomotive, a colored glass mounted in a frame, lugs on opposite sides of the frame having holes through them, rods secured to the head-light casing in front of the flame of the light and serving as guides for the lugs, springs combined with the rods to lift said frame, a pulley secured beneath a rod, and a cord fastened to a lower corner of the frame passing under the pulley and extending back into the cab of the locomotive, as and for the purpose stated.

2. The combination, with a railway-locomotive head-light casing formed with a slot in its upper part back of its white glass, of a colored glass mounted in a frame, a chamber covering the slot and made large enough to receive the frame, rods extending vertically from the bottom of the head-light casing to the top of the chamber, spiral springs encircling the rods, lugs on opposite sides of the frame having bearings for the rods, and a cord leading from a lower corner of the frame under the pulley back to the cab of the locomotive, substantially as and for the purpose stated.

3. The combination of the colored light D, mounted in the frame D′, the lugs *d*, formed with holes through them and secured two and two to opposite sides of the frame, the head-light casing of a railway-locomotive having a slot made in its top parallel with and back of the white glass of the head-light and large enough to permit the frame and lugs to pass through, the chamber C′, covering the slot and being large enough to receive said frame, the rods *c c*, secured to the bottom of the head-light casing and the top of the chamber and passing through the holes in the lugs, the spiral springs *d′ d′*, encircling the rods, the lug d^2, secured to the lower side of the frame, the pulley *c′*, secured to the lower side of the head-light casing, the hollow hand-rail A′, and the cord d^3, fastened to the lug d^2, passing beneath the pulley and extending through the hand-rail back into the cab of the locomotive, substantially as and for the purposes specified.

WILLIAM O. FINE.

Witnesses:
W. C. CORLIES,
E. C. CRAWFORD.