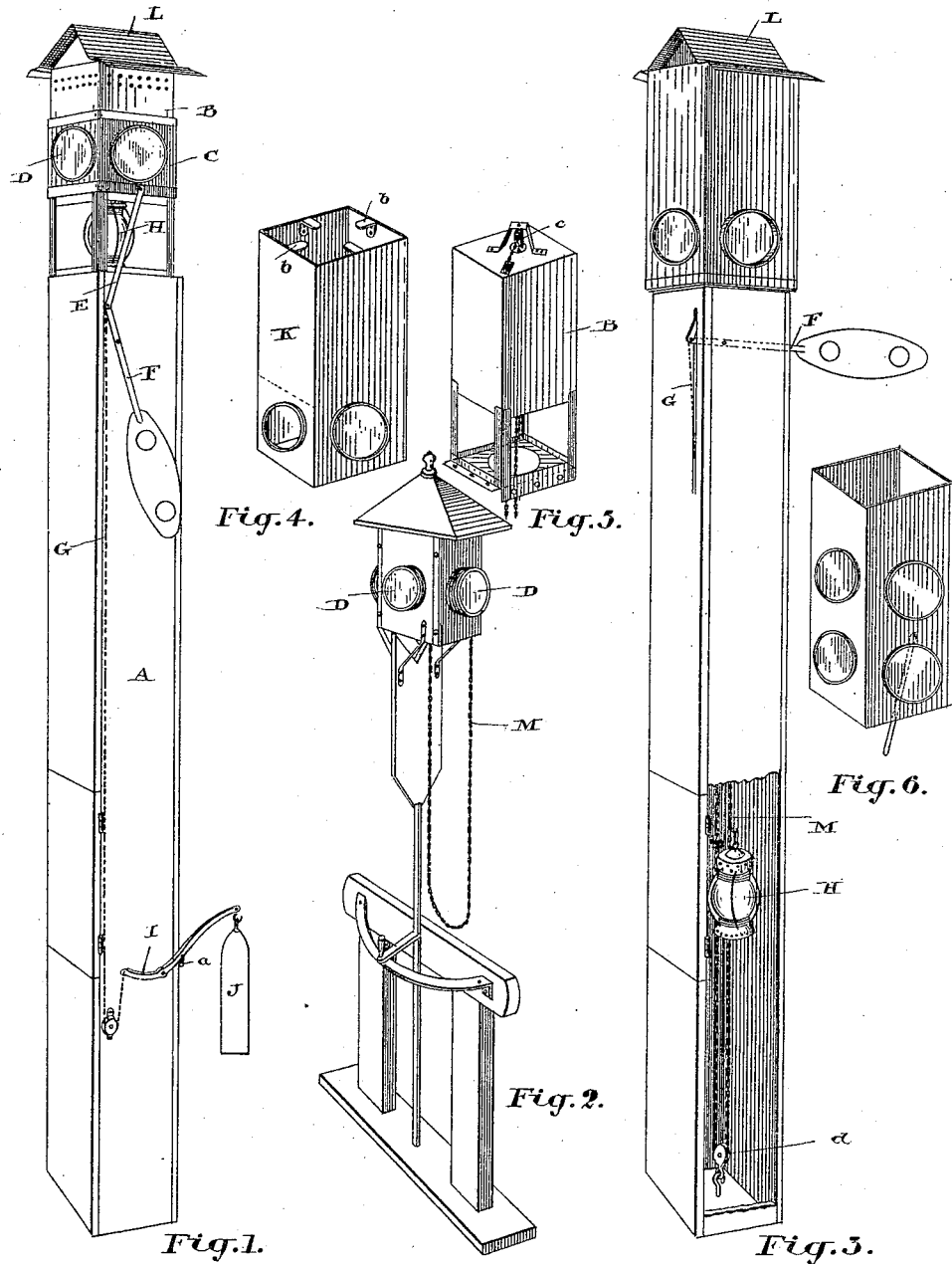


(No Model.)

E. S. PIPER.
SEMAPHORIC SIGNAL LIGHT.

No. 306,641.

Patented Oct. 14, 1884.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD S. PIPER, OF TORONTO, ONTARIO, CANADA.

SEMAPHORIC SIGNAL-LIGHT.

SPECIFICATION forming part of Letters Patent No. 306,641, dated October 14, 1884.

Application filed April 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SPENCER PIPER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, manufacturer, have invented certain new and useful Improvements in Semaphore and other Elevated Signal-Lights; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to certain new and useful improvements in semaphore and other elevated signal-lights; and it consists in the peculiar combinations and the construction and arrangement of parts, as will be hereinafter more fully described, and pointed out in the claims.

Figures 1, 2, and 3 exhibit three different forms of my invention. Figs. 4, 5, and 6 show specific details of construction.

In semaphores as now constructed the lamp is contained within a case supported on the end of a vertical rod or shaft, which is caused to revolve with the movement of the semaphore-arm, so that the lights exposed on the line shall correspond with the position of the arm of the semaphore. As these movements are effected very rapidly, particularly when the danger-signal is thrown into position, the jar to the lamp contained within, and which moves with, the revolving case is very severe, soon injures the lamp, and in some cases the light within the lamp has in this way been put out. This objection is overcome by the adoption of my invention.

As the details of my invention can be considerably varied in their construction and application, I have shown two or three different forms which suggest how changes may be made without altering the main principle of the invention.

In Fig. 1, A is a hollow post, on top of which is fixed a metal case, B, open on its four sides, but provided with a vertical movable jacket, C, each side of which is provided with a glass, D, all of which may be the same color, or made of glass of contrasting colors. This vertical sliding jacket C is connected by the bar E to the pivoted semaphore-arm F, which arm is operated by a wire rope, G, or in any other suitable manner. H is an ordinary hand-lamp suspended within the case B

immediately in front of the openings in the said case. As the glass surrounding the lamp H is white, a clear signal is exhibited. Assuming the glasses D to be red, a danger-signal is exhibited the moment that the semaphore-arm F is thrown out in a horizontal position, as, it will be seen, from its connection through the bar E to the jacket C, the said jacket will be drawn down over the openings in front of the lamp H by the outward action of the arm.

Although the semaphore-arm F may be operated in various ways, it is not necessary for the object of understanding my invention to exhibit more than one plan. The plan I show consists in connecting the rope G to the pivoted lever I, on the opposite end of which lever is hung the weight J. As arranged in this figure, the weight J is supposed to be sufficient to counterbalance the semaphore-arm F, so that when the weight J is not supported in some way—for instance, by a pin, *a*, placed below the lever I—the said weight will hold the arm F in a horizontal position, and the jacket C will accordingly be held over the openings in the case B. If preferred, the weight J might be arranged so as to hold the arm F down and the jacket C up, as indicated in this figure; or the weight might be dispensed with and the jacket C made sufficiently heavy to counterbalance the weight of the arm F, so that the signal will always fly to “danger” should the rope G happen to break. I mention these facts; but I do not consider them of any importance, so far as the principle of my invention is concerned.

Fig. 4 shows an outer case, (marked K in Fig. 3.) This case fits around the jacket C, sufficient space between the outer case, K, and the inner metal case, B, being left to allow of the free vertical movement of the jacket C.

Fig. 5 shows a detail of the case B. It will be noticed that four lugs, *b*, are riveted on the top edge of the outer case, K. These lugs are intended to rest upon the top of the case B, when the outer case, K, is slipped over it. The thickness of these lugs holds the case K sufficiently far from the case B to leave enough space between the two to permit the free movement of the jacket C, which, as before stated, surrounds the case B.

Fig. 3 exhibits the outer case, K, in position, a suitable top, L, being provided, and the cases are properly ventilated.

In Fig. 3 I show a lamp, H, lowered near the ground. In this figure it will be seen that the lamp H is suspended on a chain or rope, M, which chain or rope M is preferably made endless by having its other end connected to the bottom of the lamp, after passing over 5
10 pulleys—one (marked *c*) located at or on the top of the case B, the other (marked *d*) being located at the bottom of the post A. From this it will be seen that the lamp H may be elevated into or lowered from the case without 15
the party operating it being required to ascend to the elevated case B, from which the signals are given. This plan it will be seen affords an opportunity of cleaning and lighting the lamp without the necessity of ascending 20
into the elevated position in which the signal-case B is located.

I may also draw attention to the fact that the jacket C, which contains the signal-glass, is adjusted entirely independent of the lamp. 25
Consequently the signals may be changed without jarring or in any way affecting the burning of the lamp.

In Fig. 6 I show the jacket C with double glasses D. When the jacket C is made with 30
two rows of glasses, as shown in Fig. 6, there will be no open space around the lamp, the lower row or glasses being arranged to indicate one set of signals, while the second set of signals will be exhibited by lowering the case 35
C till the upper row or glasses come opposite to the lamp H.

Fig. 2 shows my invention applied to a switch. In this application the lamp H is carried on a rope or chain, M, exactly in the same way as 40
already described, so that the said lamp may be carried up into the hollow case B (shown in Fig. 2) or lowered from it, for the purpose already mentioned.

When made for a switch-lamp, the metal 45
case B is simply a metal case having an open bottom and provided with the ordinary signal-glasses, D. No sliding jacket is necessary, as the case B turns with the switch-target; but as the lamp H is suspended within the case B 50
from its center on a flexible chain, M, no appreciable jar is imparted to the lamp by the movement of the target. I have shown the metal case B located on top of a hollow post, A; but it will of course be understood that a 55
solid post would answer, provided a clear space below the metal case B is left, so that the lamp H may be raised into or lowered from the said case, a hole in the bottom of the case B suffi-

ciently large for the admission of the lamp being always left. It will also be necessary, although I have not shown any, to provide means 60
for locking the chain M, so that the lamp, when once elevated into position, cannot be lowered or otherwise tampered with.

What I claim as my invention is— 65

1. A fixed, immovable hollow case, B, having an open bottom, and a pulley, *c*, located at its top, in combination with an endless chain, M, one end secured to the top of a lantern, and the other end passing over said pulley down 70
the side of the case and lantern and secured to the bottom of the lantern, substantially as and for the purpose specified.

2. A post, A, provided at the top thereof with hollow case B, in combination with the 75
jacket C, having glasses D, and connected directly to the semaphore-arm F by the bar E, whereby both jacket and semaphore-arm are operated simultaneously, substantially as and 80
for the purpose specified.

3. The post A, provided with the hollow case B, in combination with the jacket C, semaphore-arm F, connected directly to said jacket 85
by the arm E, the rope G, lever I, and weight J, substantially as and for the purpose specified.

4. A hollow case, B, having an open bottom, and provided with means for adjustably 90
suspending a lamp, H, within it, and having a jacket, C, with glasses D, arranged to be adjusted in front of the lamp, as specified, in combination with an outer case, K, designed 95
to surround the jacket C, and provided with glasses or openings so located as to be in front of the lamp H when suspended within the case B.

5. The outer case, K, provided with lugs *b*, and having glasses D inserted in it, as specified, in combination with the hollow case B, 100
provided with a sliding jacket, C, having glasses D, and arranged substantially as and for the purpose specified.

6. The post A, having the hollow case B secured to the top thereof, the jacket C, sliding 105
on said case B, and the pivoted semaphore-arm F, connected directly to said jacket by the bar E, in combination with the rope G, connected at one end to said arm F, and at the other to the pivoted lever I, the weight J, hung on said 110
lever, and the stop *a*, secured to said post, substantially as and for the purpose specified.

Toronto, April 4, 1884.

EDWD. S. PIPER.

In presence of—

CHARLES C. BALDWIN,
A. OGDEN.