(No Model.)

J. G. SCHREUDER.

SEMAPHORE SIGNAL.

No. 387,452. Patented Aug. 7, 1888.

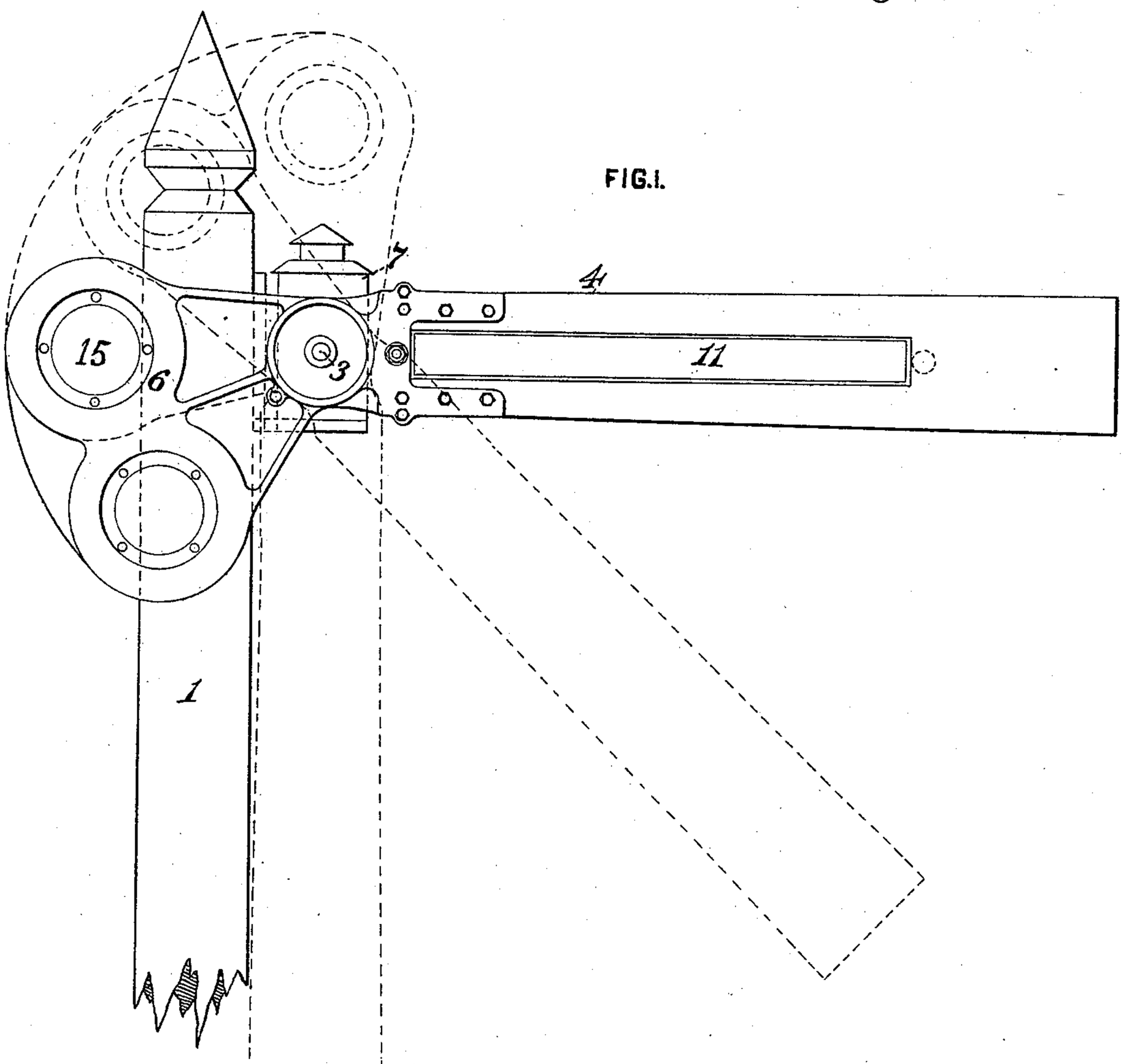

FIG. 1.

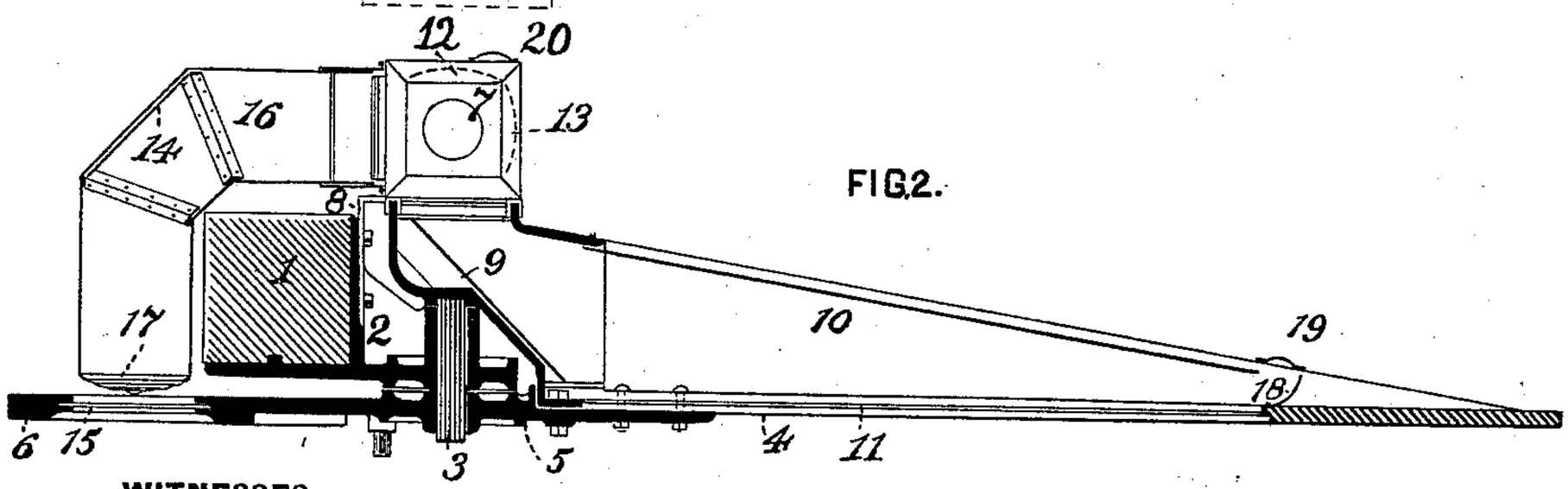

FIG. 2.

WITNESSES:

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INVENTOR,

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UNITED STATES PATENT OFFICE.

JENS G. SCHREUDER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO GEORGE WESTINGHOUSE, JR., OF SAME PLACE.

SEMAPHORE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 387,452, dated August 7, 1888.

Application filed March 19, 1888. Serial No. 267,680. (No model.)

To all whom it may concern:

Be it known that I, JENS G. SCHREUDER, a subject of the King of Norway, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Semaphore-Signals, of which improvements the following is a specification.

The invention described herein relates generally to certain improvements in what are known as "position" signals or semaphores, but has reference more especially to that class or kind of semaphores which have their blades illuminated, so as to permit of the use of the blade for signaling at night as well as in daytime. In using this class of semaphores reliance has been had for signaling at night either upon the illuminated blade alone, or, if a colored lens has been used, a second lamp for the illumination of the lens has been necessary.

The object of the invention herein is to provide for the use of the illumination of the swinging arm and the colored lens by one light for signaling at night; and to this end the invention consists in the construction and combination of devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of an illuminated semaphore-signal embodying my invention; and Fig. 2 is a horizontal section of the same, the plane of section being through the blade and lamp.

The construction of the blade and the manner in which the same is mounted will only generally be referred to herein, as said parts have been fully described and shown in Letters Patent No. 346,387, dated July 27, 1886, and No. 372,569, dated November 1, 1887, to which reference should be had for a full description of the construction and operation of such parts.

On the post 1 is secured a casting, 2, carrying the pivot-pin 3, on which the blade 4 is mounted, said blade consisting of a box-like structure and the casting 5, forming the hub of the blade and the frame or spectacles 6. The lamp 7 is supported by a horizontal bracket, 8, secured to the post 1, the lamp being so located, as described in the Letters Patent above referred to, that a part of the rays of light therefrom will enter the box-like blade and impinge on the reflector 9, from which said rays are reflected onto the reflector 10, and thence through the oblong window 11 in the front of the blade, said reflectors being arranged at proper angles to effect the changes of direction of the light-rays above described.

In addition to the above-described arrangement for the passage of the rays of light into and out of the blade, I form an opening in the lantern on the side adjacent to that through which the light passes to the arm, so that rays of light may be thrown at right angles to the above-described course or behind the post.

In order to utilize all the light possible, concave reflectors 12 and 13 are arranged at right angles to each other, as shown, so as to throw the light in parallel rays in the two directions desired. (See Fig. 2.) The reflector 13 directs the rays of light upon a reflector, 14, arranged at such an angle to the line of light from the reflector 13 as to throw the rays of light impinging thereon in the same direction as and parallel to the light issuing from the blade, but on the opposite side of the post. The frame or spectacles 6 is arranged at such a distance from the pivoted point of the blade that in case where only two positions of the blade are required the red-colored glass 15 in the frame will be in line with the rays of light reflected from the reflector 14 when the blade is in a horizontal or danger position; but when the blade is swung at an angle to the horizon the spectacle with its glass will be moved out of the line of light.

In order to prevent any diffusion of the light, I prefer to employ an angular tube or box, 16, extending from the lantern around the post to a point in close proximity to the path of movement of the frame 6. The reflector 14 is arranged as shown in this box or tube, and directs the light through the lens 17, secured in the end of the tube, as shown. This tube not only prevents any loss of light, but also the escape of light from any parts of the signal other than those designed therefor.

In cases where two colored glasses are used, one indicating "danger" and the other "safety," two openings are formed in the frame 6 for the

reception of suitably-colored glasses, said openings being so arranged that when the blade is moved into danger position the opening having a glass of a color indicating "danger" will be brought into line with the light passing out of the tube, and when the blade is moved into any other position a correspondingly-colored glass will be brought in front of the lens 17.

On some roads three positions of the blade are used in signaling—*e. g.*, when the blade is horizontal "danger" is indicated; when the blade is moved to an angle of forty-five degrees with the horizon, "caution" is indicated, and for "safety" the blade is dropped to a vertical position. These several positions of the blade are indicated by full and dotted lines in Fig. 1. Where three position-signals are employed, the frame 6 is provided with two openings, one for red and the other for green colored glass, the opening having the red glass being in line with the lens 17 when the blade is horizontal and the opening having the green glass being in line with the lens when the blade is in position to indicate "caution;" but, as white is usually employed to indicate "safety," the light in the frame is so arranged that when the blade drops to a vertical or approximately-vertical position the lens 17 is uncovered, thereby showing a clear white light.

As the signal is sometimes so placed that the rear side of the signal is toward the operator, and hence he cannot see the position of the blade in dark nights, to overcome this possible objection I provide at or near the outer end of the box-like blade a small reflector, 18, so arranged as to reflect rays of light out through a small opening, 19, covered with plain glass or a lens in the rear side of the blade, and the lantern is provided with a similar opening, 20, on its rear side, said opening being covered with plain glass or lens. These openings are arranged so as to be in approximately the same horizontal plane when the blade is in normal or danger position.

While preferring the construction of the swinging blade herein described, other forms or constructions of blade which can be illuminated in all positions by a stationary lantern may be used in connection with the invention herein.

I claim herein as my invention—

1. In a semaphore-signal, the combination of a swinging blade, a spectacle or frame carrying a colored glass and attached to said blade, and a lamp for illuminating both the blade and the glass carried by the frame, substantially as set forth.

2. In a semaphore-signal, the combination of a swinging blade, a spectacle or frame carrying one or more colored glasses and operated by the blade, a lantern, and suitably-arranged reflectors for throwing the light from said lantern upon the blade and the glasses in the frame or spectacle, substantially as set forth.

3. In a semaphore-signal, the combination of a swinging blade, a spectacle or frame carrying one or more colored glasses and operated by the blade, a lantern, a tube leading from the lantern to a point adjacent to the plane of movement of the frame, and suitably-arranged reflectors for directing the light upon the blade and the colored glass or glasses in the frame, substantially as set forth.

4. In a semaphore-signal, the combination of a swinging blade, a lamp for illuminating said blade, and illuminated indices on the rear sides of the blade and lantern, whereby the position of the blade may be determined, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JENS G. SCHREUDER.

Witnesses:
DARWIN S. WOLCOTT,
R. H. WHITTLESEY.