

(No Model.)

J. BORRO.

APPARATUS FOR PRODUCING FLASH SIGNALS.

No. 348,313.

Patented Aug. 31, 1886.

FIG. 1.

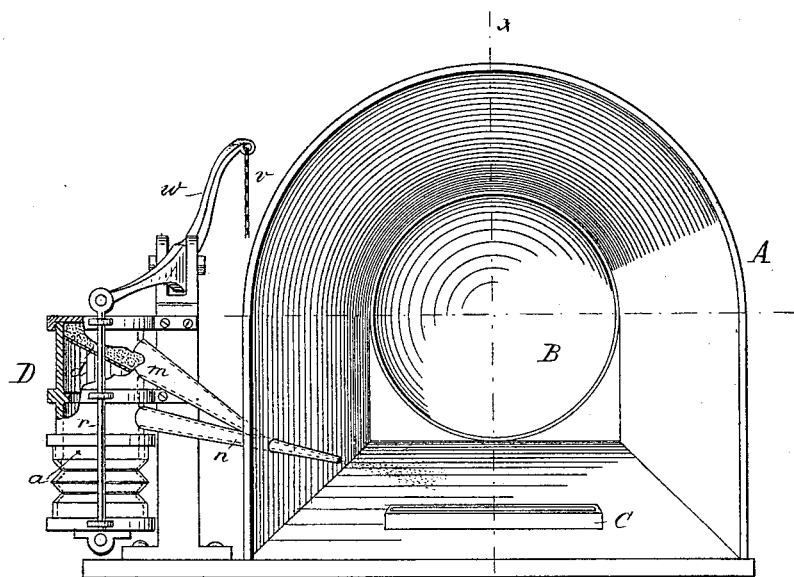


FIG. 2.

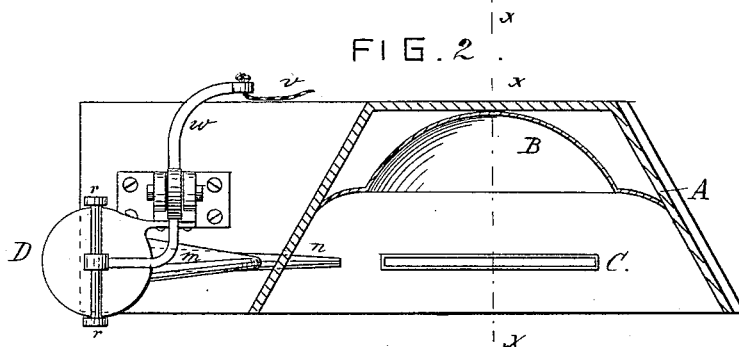
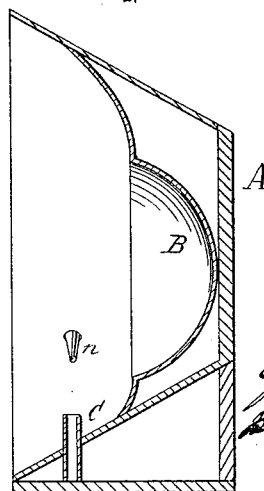


FIG. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOSEPH BORRO, OF NEW YORK, N. Y.

## APPARATUS FOR PRODUCING FLASH SIGNALS.

SPECIFICATION forming part of Letters Patent No. 348,313, dated August 31, 1886.

Application filed July 15, 1885. Serial No. 171,682. (No model.)

### *To all whom it may concern:*

Be it known that I, JOSEPH BORRO, of the city of New York, county and State of New York, have invented a new and Improved Apparatus for Producing Flash Signals, of which the following specification is a full, clear, and exact description.

This invention relates to lanterns for producing flash signals.

The invention consists in the elements of improvement hereinafter more fully pointed out.

In the accompanying drawings, Figure 1 represents a front view of my improved signal apparatus. Fig. 2 is a plan of the same, partly in section; and Fig. 3, a cross-section at line *x x*, Figs. 1 and 2.

In a suitable box or casing, A, a convex glass reflector, B, is fitted. This reflector is made of any desired color, and is provided with a silver-coated back similar to a looking-glass. The reflector is attached in such a manner that it can be easily removed and replaced by one of another color, so as to correspond to the signal to be given. To this effect the two sides and the top and bottom of the casing A are made tapering at the inside, so that the chamber contracts from the front toward the rear. Into the rear portion of this chamber the reflector B is placed, so that the lips of the reflector bear against the tapering sides of chamber A. This permits the reflector to be removed by moving it forward—viz., toward the enlarged portion of the chamber. The reflector may be further attached by a set-screw or other devices, so as to be readily removed. Some distance in front of this reflector there is placed, in casing A, a long narrow trough or lamp, C. This trough or lamp is designed to contain alcohol or any other burning-fluid in order to main-

tain a small steady flame. At one side of the box there is located a pump, D, the lower part, *a*, of which forms an air-blower or bellows for discharging the air through a nozzle, *n*, into the interior of the box A directly over the fire or flame in the trough C. This blower is operated through a cord, *v*, lever *w*, and rod *r*.

The upper part, *d*, of the pump constitutes a chamber attached to the stand supporting the lever *w*, or it may be attached to the casing A, and is provided with a nozzle, *m*, the mouth of which is in line with that of the nozzle *n*, and enters the same. This chamber *d* is filled with a suitable inflammable powder, such as magnesium or lycopodium.

When it is desired to give a signal, the lever *w* is oscillated through the cord *v* so as to operate the blower *a*, when an air-blast is forced into the box A directly over the flame or light in the trough C. This air-blast will at the same time carry by suction a certain quantity of the powder from the chamber *d* with it over the flame, and thus produce a flash which is reflected from the reflector B. This reflected flash may be seen at a great distance, and is so strong as to penetrate a dense fog.

I claim as my invention—

1. The combination of casing A with reflector B, trough C, and pump D, having blower *a*, chamber *d*, and nozzles *n m*, substantially as described.

2. The combination of casing A with reflector B, trough C, chamber *d*, and pump D, having blower *a*, nozzles *n m*, rod *r*, and lever *w*, substantially as specified.

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Witnesses:

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