

(No Model.)

A. HARRIS & G. M. CLARK.

LOCOMOTIVE HEAD LIGHT.

No. 272,247.

Patented Feb. 13, 1883.

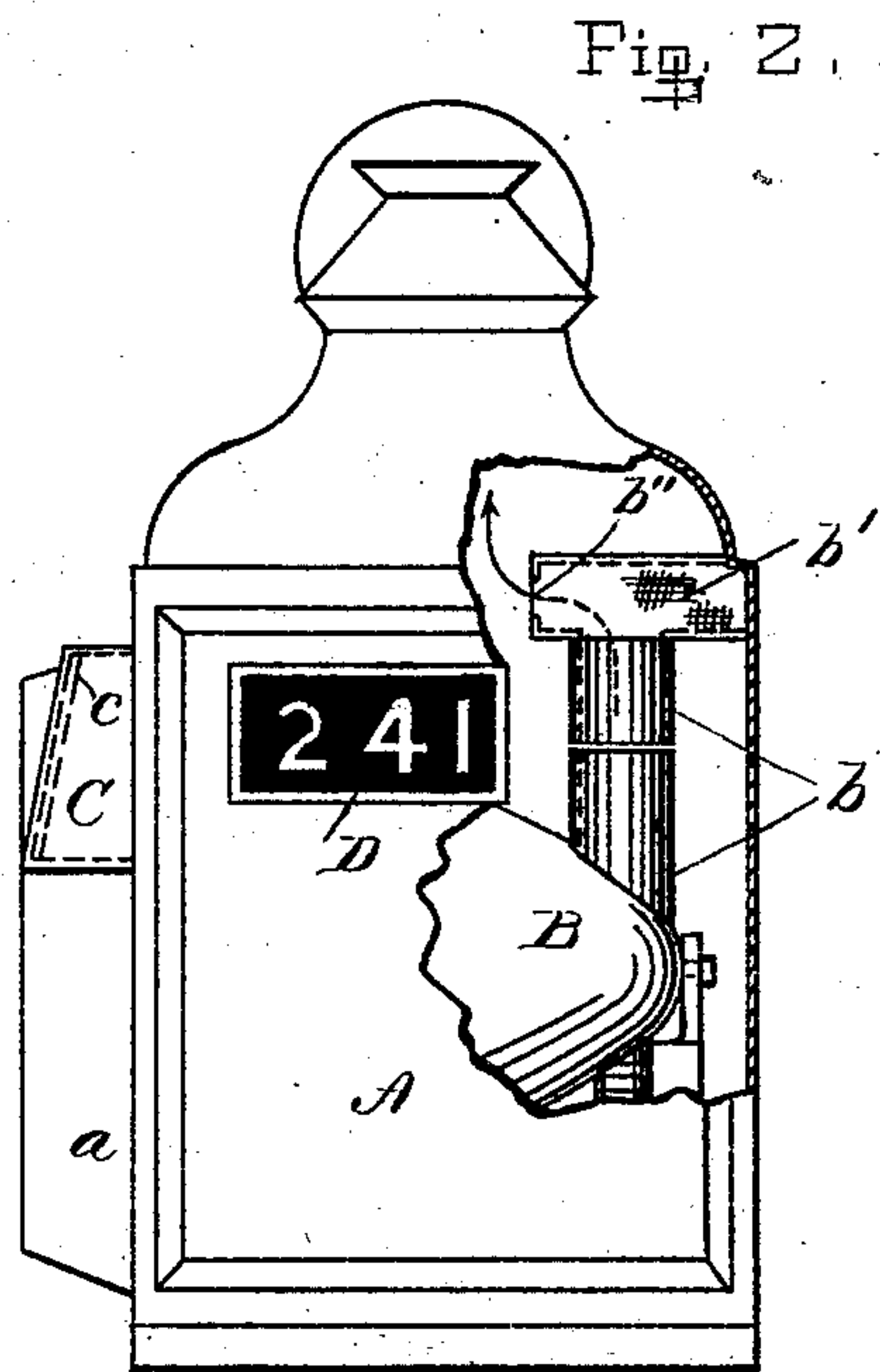
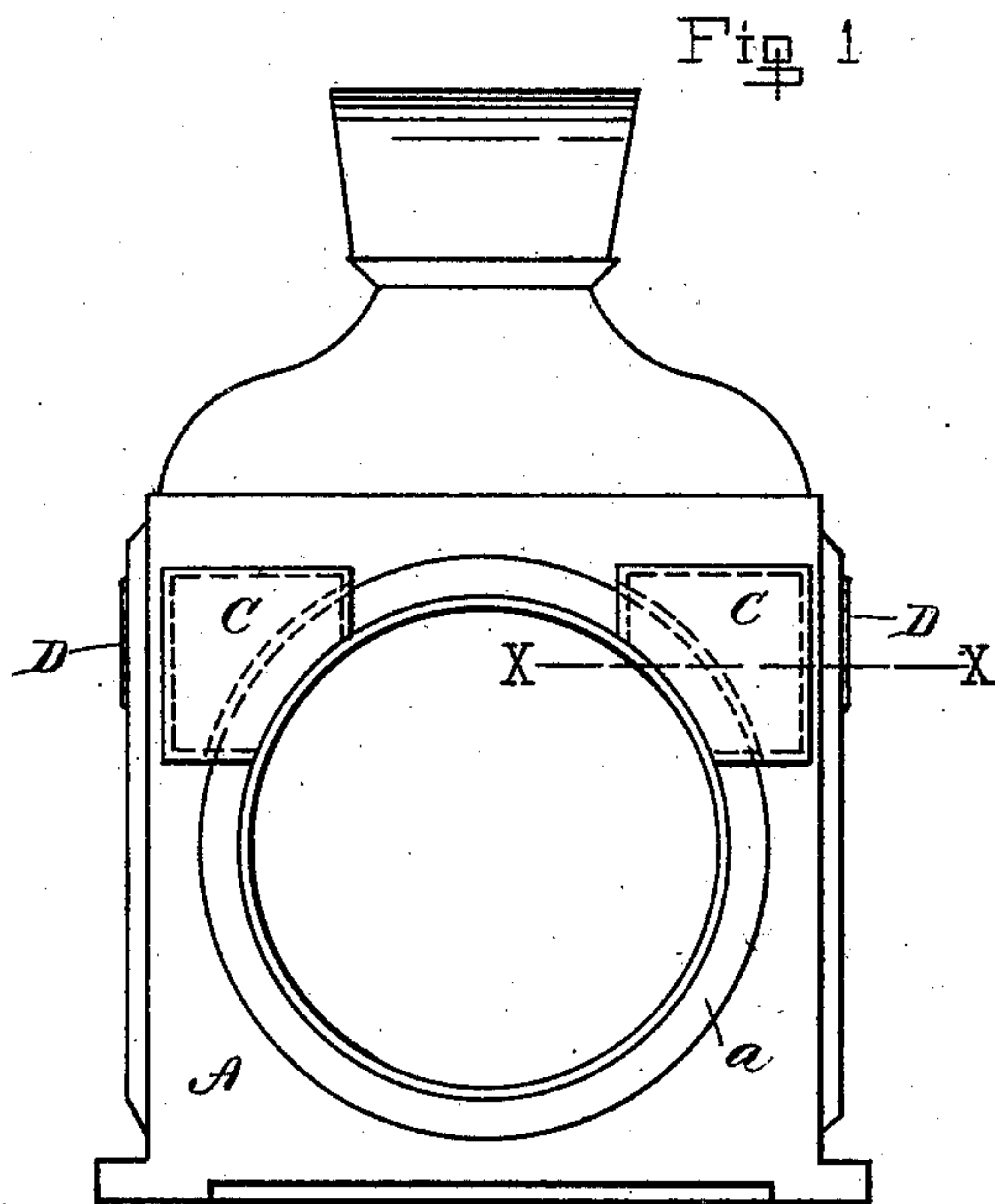
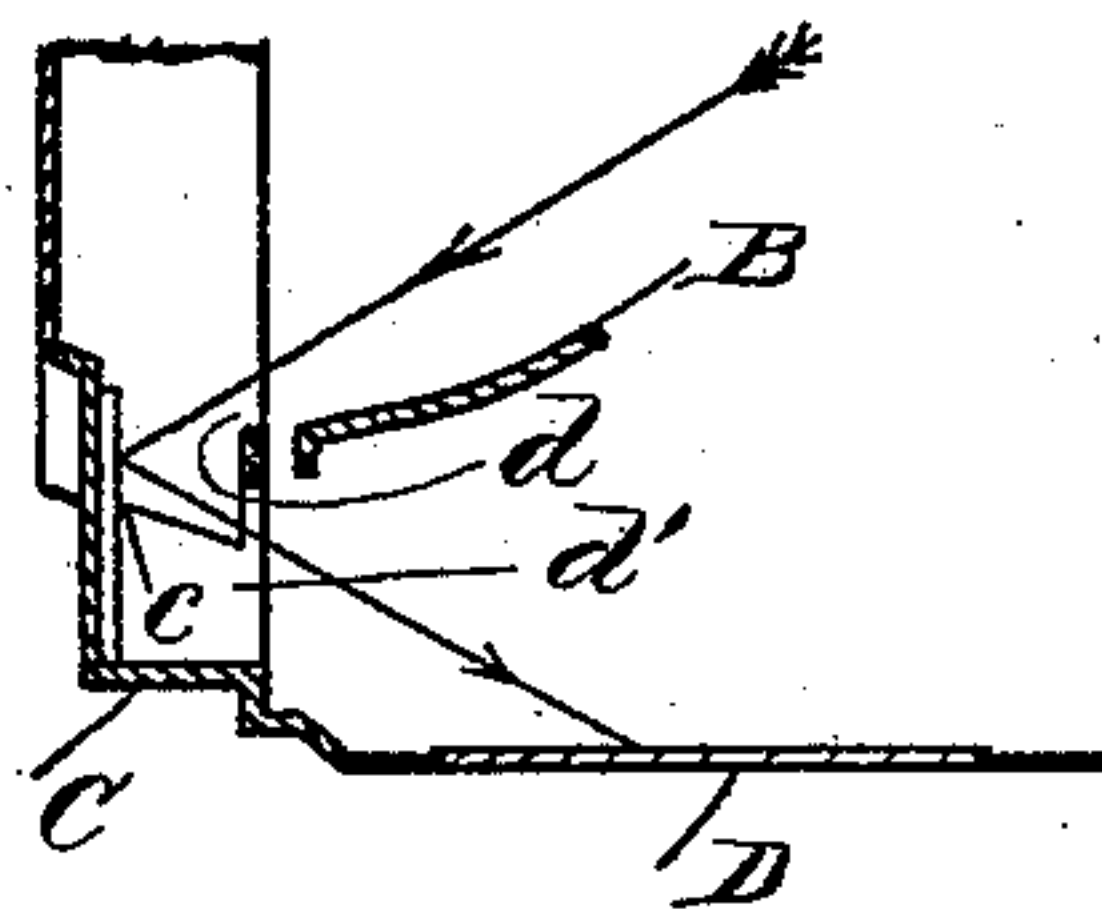


Fig. 3



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# UNITED STATES PATENT OFFICE.

ARTHUR HARRIS AND GEORGE M. CLARK, OF CHICAGO, ILLINOIS, ASSIGNORS  
TO J. MCGREGOR ADAMS, OF SAME PLACE.

## LOCOMOTIVE HEAD-LIGHT.

SPECIFICATION forming part of Letters Patent No. 272,247, dated February 13, 1883.

Application filed November 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, ARTHUR HARRIS and GEORGE M. CLARK, both of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Locomotive Head-Lights, of which the following is a specification.

This invention relates to means for displaying signals on locomotive head-lights; and, briefly considered, it consists in casting light from the lamp and main reflector to boxes at the respective sides of the front of the head-light or lantern, the boxes communicating with the interior of the head-light through openings in the rim, and carrying the light thence by reflection back through openings in the front of the case to transparent plates inserted in the respective sides thereof bearing signal numbers or marks.

The invention further consists in providing a cylindrical opaque casing for the chimney, for a purpose hereinafter specified.

In the accompanying drawings, Figure 1 is a front view of our improved head-light. Fig. 2 is a side view of the same, partially in section. Fig. 3 is a sectional plan of a portion of the head-light on the line *x x* of Fig. 1.

Similar letters of reference indicate similar parts in the respective figures.

A is the outer casing of the head-light or lantern. The rim is represented by *a*.

B is the main reflector. Above the hole cut in the reflector for the passage of the chimney is a cylinder, *b*, made of metal or other suitable opaque material, which cylinder may be formed in one or two parts, and attached to, as a part of, the reflector B or made separate therefrom. The upper portion of the cylinder is provided with a box, *b'*, having a front opening, *b''*, through which the heat and smoke from the lamp escape.

At the front of the case A, at each side thereof, is placed a box, C, the front walls of which boxes are on their inner sides provided with reflecting-surfaces *c c*. Parts of the rim are removed where the boxes C unite with the rim, as shown at *d* in Fig. 3. At each side of the casing A, in practically the same plane as that occupied by the boxes C C, is placed a transparent plate, D, on which plate is painted the signal number or mark. Light thrown

from the main reflector B will be received upon the reflecting-surfaces *c c* through the openings *d d* of the rim, and carried back through the openings *d' d'* of the case A to the transparent plates D, thus exhibiting the number or signal. The opaque cylinder *b* shuts off the light insufficient in itself for purposes of signaling, which would otherwise be thrown directly through the transparent plates D. The brilliant rays of light thrown backward from the reflectors are therefore solely relied on to illuminate the plates, the concentration of light thereon from one direction only producing very effective results. These can only be attained by projecting the reflectors forward of the front wall of the lantern, which is done by the employment of the boxes C C. The reflecting-surfaces *c* are thus made to extend within the area of the front of the main reflector B, and receive the full power of the light emitted therefrom. The light is reflected back upon the plates D, flooding their entire area, and is not dimmed or diminished by secondary reflection, or the interposition of any object to divert or change the direction of the rays.

The signal-plates may be made removable in order to permit the use of different numbers or colors.

This invention may be added to head-lights in ordinary use.

We disclaim the invention set forth in Patent No. 225,299, granted March 9, 1880, to Michael Nicholson, and also that described in Patent No. 209,405, granted October 29, 1878, to William Kelley, reissued February 18, 1879, under No. 8,591, which patents cover the cutting of the rim. We also disclaim the cutting of the front of the outer case, which is shown and claimed in Patent No. 234,410, granted November 16, 1880, to said Kelley.

We claim as our invention—

1. In a locomotive head-light, the combination of a reflector and opaque chimney-casing, having an opening for the escape of heat and products of combustion, the base of the opaque chimney-casing closing the opening in the reflector through which the chimney passes, substantially as set forth.

2. The combination, in a locomotive head-light, of a perforated reflector, an opaque chimney casing whose base or lower edge closes the



perforation in the reflector, and a box having an opening for the escape of heat and products of combustion from the lamp, substantially as set forth.

5 3. The combination, in a locomotive head-light, of an outer case having transparent signal-plates inserted in its sides, and boxes having openings uniting with openings in the rim and front of the case, and provided with interior reflectors, whereby the reflecting-surfaces are projected or carried forward of the front of the outer case, and the light is cast back and away from the boxes to the signal-plates, substantially as set forth.

15 4. In a locomotive head-light, an outer case having front perforations and a perforated rim, and transparent plates set in the sides of said

case, combined with reflecting-boxes having openings uniting with the openings in the case and rim, respectively, and adapted to receive 20 light through the rim-openings, and cast back the light from a plane forward of the front of the outer case, through the openings in the case, to the transparent plates for signaling purposes, substantially as set forth. 25

In testimony whereof we have hereunto set our hands and seals this 22d day of November, 1882.

ARTHUR HARRIS. [L. S.]  
GEO. M. CLARK. [L. S.]

Witnesses:

LAURENCE BROWN,  
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