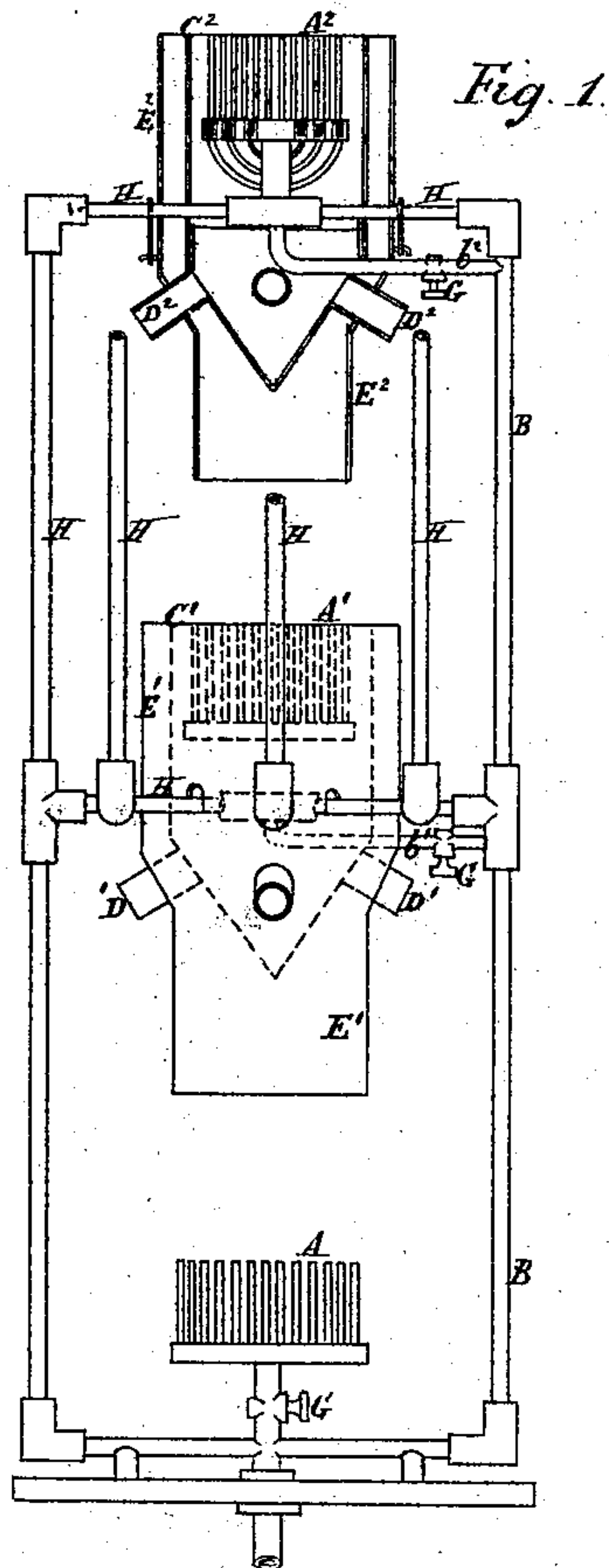
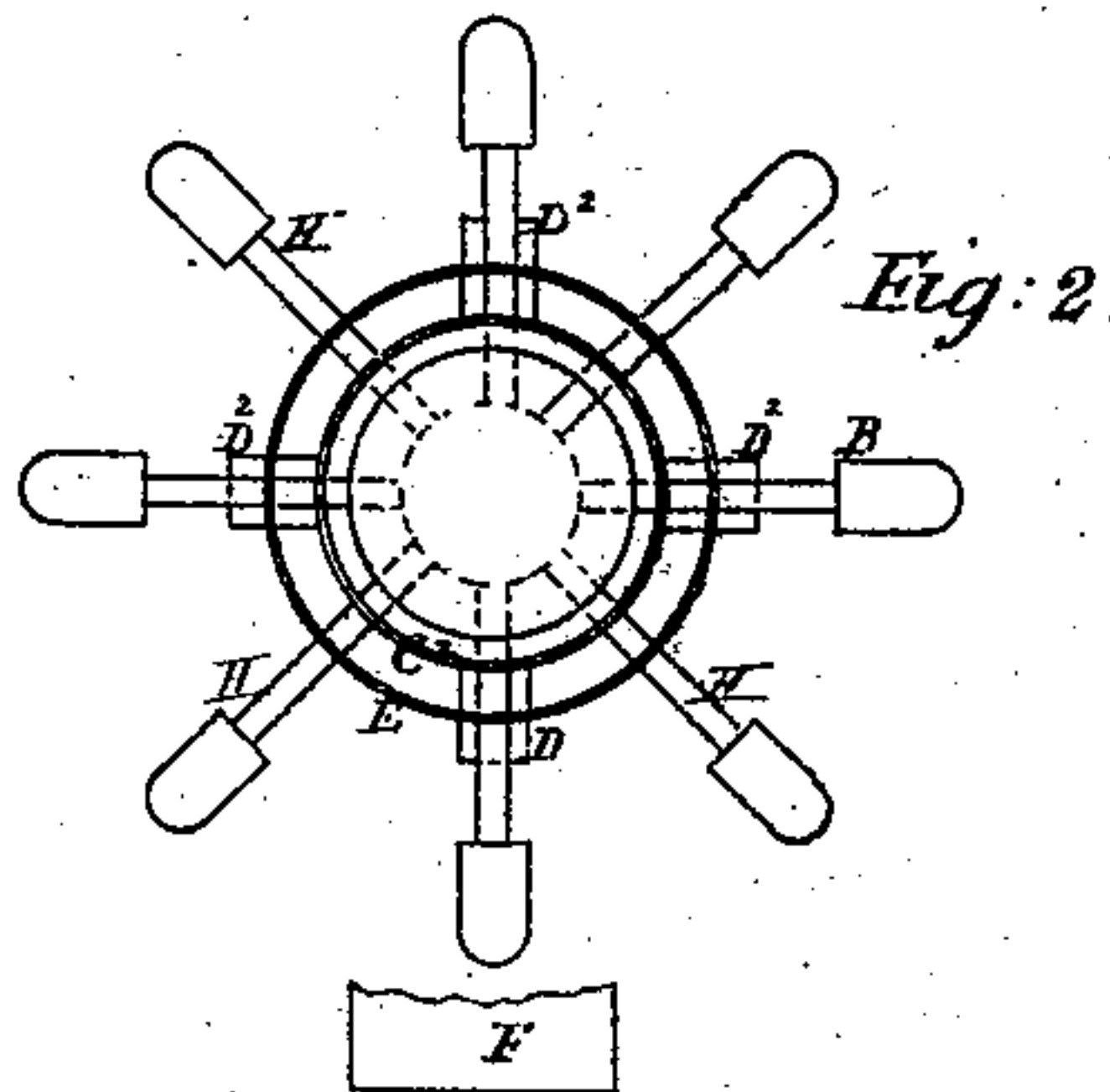


**J. R. WIGHAM.**  
**Light-House Burners.**

No. 152,538.

Patented June 30, 1874.



Witnesses:

H. A. Daniels  
 A. H. Parris

Inventor:

John R. Wigham by  
 Chas. S. Whitman  
 atty.

# UNITED STATES PATENT OFFICE.

JOHN RICHARDSON WIGHAM, OF ALBANY HOUSE, MONKSTOWN, IRELAND.

## IMPROVEMENT IN LIGHT-HOUSE BURNERS.

Specification forming part of Letters Patent No. **152,538**, dated June 30, 1874; application filed December 6, 1873.

*To all whom it may concern:*

Be it known that I, JOHN RICHARDSON WIGHAM, of Albany House, Monkstown, in the county of Dublin, Ireland, have invented an improvement in lamps or burners for illuminating light-houses, beacons, harbor-lights, light-ships, and for signaling or other purposes; and do hereby declare that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent—that is to say:

Hitherto when glass-reflecting or glass-refracting dioptric apparatus (such as annular lenses, refracting-belts, &c.,) have been used in the illumination of light-houses, only one focal lamp, burner, or source of artificial light has been used in each lantern, as the main central radial focus from which the light is transmitted through the dioptric apparatus direct to the mariner.

My present invention consists in the employment in each lantern for such apparatus, as aforesaid, of two or more such main focal lamps or burners, whereby greatly-increased light may be transmitted to the mariner. For this purpose I place two or more burners or sources of light vertically, or nearly so, one over the other, and I arrange air flues and passages to and from the respective lamps or burners, in such a manner that the products of combustion from the lower burners do not interfere with the action of the upper burners, and that the air-supply to the upper burners is heated and accelerated by the action of the lower burners. I avail myself of the spaces in the aforesaid refracting or reflecting apparatus which are not traversed by the rays of light to the lenses or refracting-belts, &c., as the case may be, for the purpose of placing within those spaces the pipes or other appliances for conducting illuminating gas, oil, or other illuminating agent to the same, as also the supports for the upper burners, so that such pipes and support shall not obstruct the rays of light transmit-

ted through the refracting or reflecting apparatus.

In employing such lights, arranged as described, one light only may be exhibited in clear weather, while two or more may be exhibited in foggy weather, and each light or all the lights may be alternately extinguished (or reduced to the smallest possible extent) and re-exhibited as frequently as may be required for signaling or distinctive purposes, such extinction and re-exhibition being effected by means of mechanical contrivances, such as those described in the specification to Letters Patent for Great Britain, granted to me on the 18th March, 1871, No. 729, for producing intermittent gas-flames where annular lenses are employed; or, in revolving lights the lenses of the apparatus may be placed eccentrically over each other, so as to prolong the duration of the flash in a manner which could not be possible if one light only were employed.

Figure 1 of the drawings shows an elevation of a series of three lamps or burners constructed and arranged according to my before-described invention, the casing and flues to the upper burner being shown in section. Fig. 2 shows a plan.

A<sup>1</sup> A<sup>2</sup> are three burners, consisting, by preference, of concentric rings of jets, arranged vertically one over the other, and supplied with gas or other combustible fluid by the pipe B and branches b<sup>1</sup> b<sup>2</sup>. C<sup>1</sup> C<sup>2</sup> are cylinders or casings surrounding the upper burners, closed at their lower ends, into which the air-supply to the burners enters through the lateral flues or tubes D<sup>1</sup> D<sup>2</sup>. E<sup>1</sup> E<sup>2</sup> are flues surrounding the casings C<sup>1</sup> C<sup>2</sup>, and extending down below the same, through which the products of combustion pass from the lower burners, the lateral air-supply flues D<sup>1</sup> D<sup>2</sup> being made to pass through the flues E<sup>1</sup> E<sup>2</sup>, as shown. F is a flue or chimney for carrying off the products of combustion from the burner A<sup>2</sup>. G G are taps on the gas-supply pipes, by which one or more of the lights may be extinguished, according as a greater or less amount of light may be required, as hereinbefore described.

It will be seen that while the products of combustion escape from the lower burners



through the flues  $E^1 E^2$  without interfering with the action of the upper burners, the heat of such products of combustion is imparted to the air passing through the flues  $D^1 D^2$  and casings  $E^1 E^2$ , whereby the currents of air to the burners are accelerated, and the combustion is consequently rendered more perfect.

The upper burners and their casings are supported by the gas-pipe  $B$  and by other pipes or rods  $H H$ , which are arranged in positions corresponding with the spaces in the refracting or reflecting apparatus, which are not traversed by the rays of light, so that they do not obstruct the light transmitted through such apparatus.

Although I have shown three burners in combination, it will be evident that only two, or more than three, such burners may be employed, according to my invention; also, instead of constructing the burners, as shown,

for burning gas, they may be constructed as oil-lamps.

Having thus described the nature of my invention and in what manner the same is to be performed, I claim—

The casings and flues  $C^1 C^2 D^1 D^2 E^1 E^2$ , in combination with the burners  $A A^1 A^2$ , substantially as and for the purposes herein described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 15th day of November, A. D. 1873.

JOHN RICHARDSON WIGHAM.

Witnesses:

JOHN DONOHUE,

*5 Clanhassel Terrace,*

*Dublin, Householder.*

PATRICK HAYES,

*1 Anglesea St., Dublin.*