(No Model.)

C. P. HOWARD.

SMOKE JACK.

No. 535,542. Patented Mar. 12, 1895.

Fig. 1.

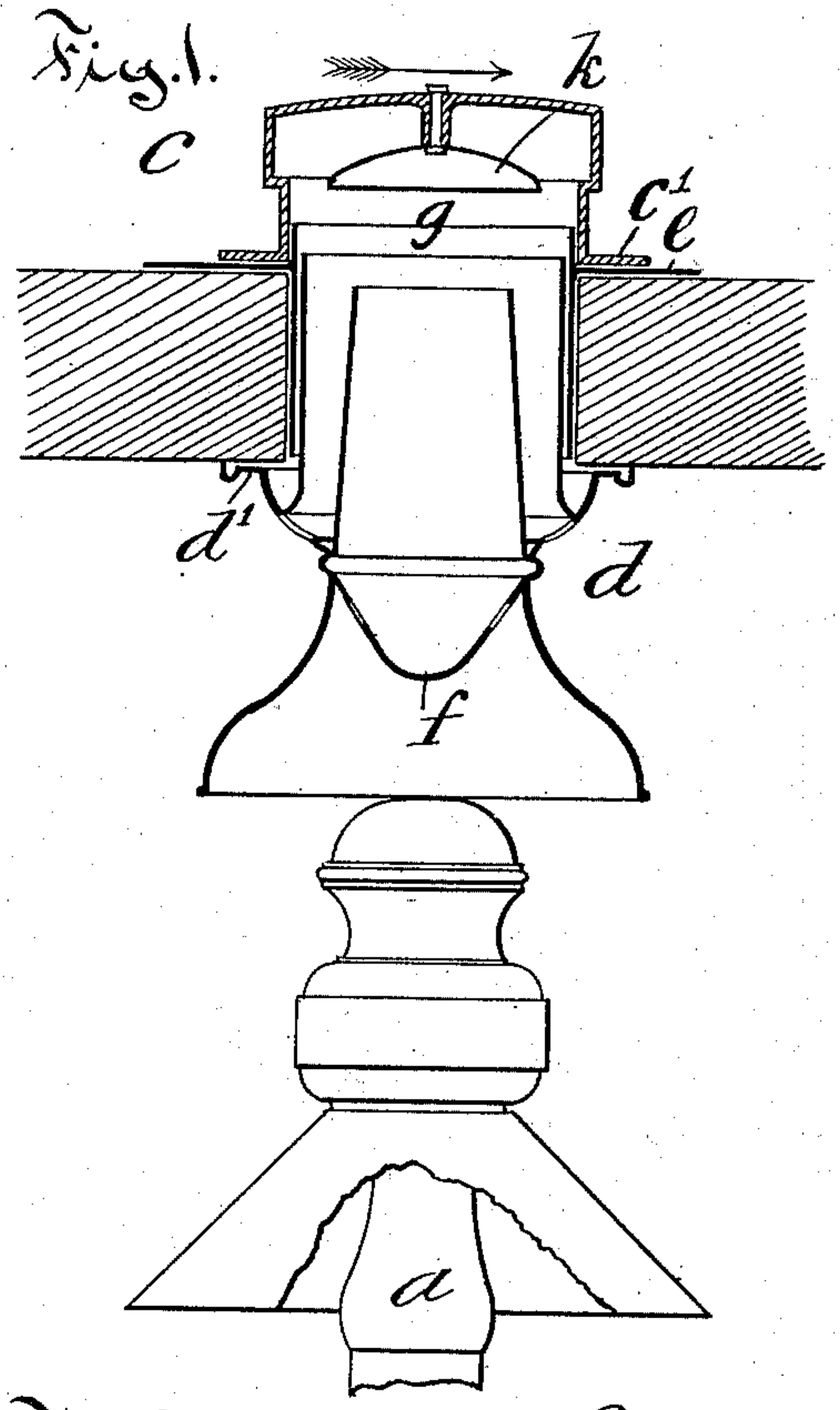


Fig. 2.

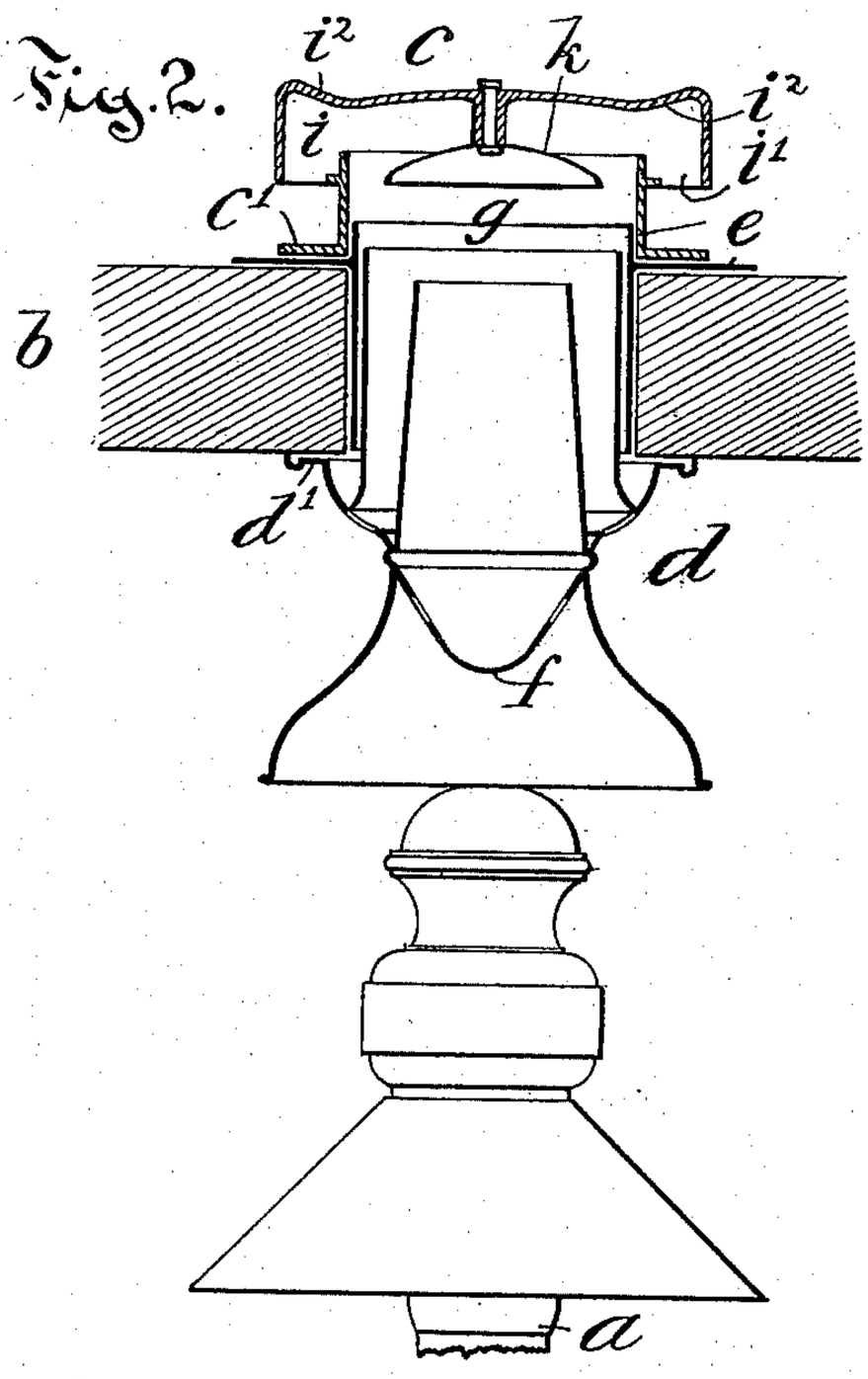


Fig. 3.

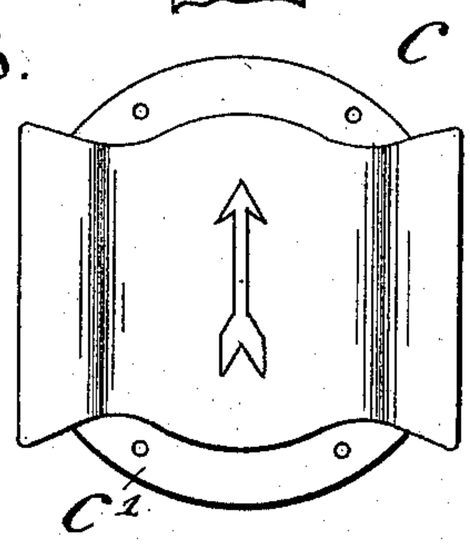
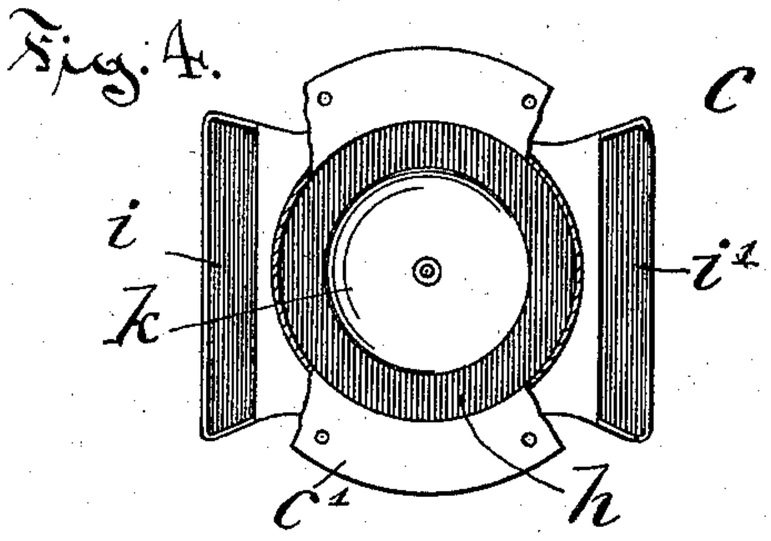


Fig. 4.



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SMOKE-JACK.

SPECIFICATION forming part of Letters Patent No. 535,542, dated March 12, 1895.

Application filed December 22, 1893. Serial No. 494,453. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. HOWARD, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Smoke-Jacks, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

The object of my invention is to provide a device or apparatus which is adapted to utilize the force of a moving current of air across the axis of the body part of the device to induce a current through the body, such induced draft being utilized in removing smoke, gas or foul air from a closed room or chamber. Such a device is more particularly adapted for use on a railroad car and my improvement is herein described and illustrated in connection with an apparatus specially fitted for the purpose of removing heat and smoke of a lamp from the interior of a railroad car within which the lamp is carried.

My invention consists more particularly in the special construction of the device by which an outflowing current through the body part of the device is induced, while the draft openings are so located as to prevent the inflow of cinders or other objectionable matter; and it further consists in the details of the several parts making up the apparatus as a whole and in the combination of such parts as more particularly hereinafter described and pointed out in the claims.

Referring to the drawings: Figure 1 is a view in side elevation of a lamp on a plane lengthwise of the center of a car, to the roof of which my improved apparatus is fixed, showing the smoke-jack in central section. Fig. 2 is a detail view in section through the smoke-jack on a plane at right angles to the plane of view of Fig. 1. Fig. 3 is a detail top view of the top plate of the jack. Fig. 4 is a detail bottom view of the same.

In the accompanying drawings the letter *a* denotes the chimney of a railway car lamp which may be fitted with a form of burner giving a large amount of light and therefore consuming a comparatively large quantity of oil, the smoke, gas, and heat from which it is necessary to remove from the car for the comfort of the passengers and also to prevent injury to the interior of the car. These products of combustion are more conveniently carried through the roof, but a fault in prior devices for this purpose has been that while allowing the outflow they have not been so arranged as to prevent the inflow of currents of air, of gas, smoke, and of cinders.

In carrying out my improvement an opening is formed through the roof *b* of a railway car and the smoke-jack *c* secured therein. This overlies a tubular body *d* secured to the roof of the car and separated therefrom by a metallic lining *e*, the body being preferably secured to the roof of the car from within by means of fastening devices, as screws passing through the outturned flange *d'*. Pendent from the body part is the usual form of bell or collector *f* into which the products of combustion from the lamp are directly discharged from below, the collector having a flaring mouth as shown.

A series of openings for the passage of air through the interior of the collector and also between it and the tubular body *d* is provided, the whole device serving to form a direct outlet for the products of combustion delivered from the lamp chimney and also for heated and foul air which may flow more or less indirectly from other parts of the car. All these, however, pass out through a discharge outlet *g*.

The smoke-jack *c* is formed preferably of metal cast to shape with a flange *c'* which rests upon the roof of the car and by means of which the smoke-jack is secured in place. The smoke-jack comprises a central chamber *h* and lateral chambers *i*, *i'*, the latter having lengthwise openings at the bottom arranged substantially parallel to the direction of movement of the car, the body part of the smoke-jack being secured on the roof in such position that the openings to these lateral chambers *i*, *i'*, shall extend in the direction of movement of the car, the arrow in Figs. 1 and 3 indicating the position of the smoke-jack with reference to the car body, and also the direction of movement of the car, the point of the arrow looking toward the front end of the latter.

The top of the smoke-jack immediately overlying the lateral chambers is inclined upward and outward, this portion i^2 of the up-

per wall or roof being thus set at an angle which would tend to deflect outward any spark or cinder which from any cause might be driven into the open mouth of the chamber.

Within the body of the smoke-jack there is preferably arranged a smoke bell or disk *k* pendent from the center of the roof of the smoke-jack, its function being to interpose an additional barrier to the ingress of sparks and cinders and also to deflect currents of air and prevent any sudden inward draft which would affect the flame of the lamp and cause it to flicker if unobstructed.

An important feature of the improvement resides in the closing of the smoke-jack on the front and rear surfaces and thus preventing the ingress of rain, snow, or of cinders, or sparks, while permitting the egress of air through the discharge opening *g* through the mouths of the lateral chambers *i*, and *i'*. It has been determined by extended experiment that by fitting a car with my improved smoke-jack, constructed as within described, all smoke and other products of combustion are drawn out from the car, and that no cinders or sparks or indrafts of air that affect the burning of the lamp can flow in a return direction through the apparatus and into the car. Experiment has proved it to be an effective preventive of smoking and guard against the objectionable features incident to prior devices of this class. The rapid flow of currents of air past the mouths of the lateral openings causes induced outward flowing currents of sufficient velocity to thoroughly remove the smoke, heat, and foul air which are incident to the use of a lamp within the car, when such lamp is arranged in proper position to discharge its products of combustion into and through the apparatus of which the smoke-jack forms a part.

I claim as my invention—

1. In combination with the roof of a railway car having an opening therethrough, a smoke jack secured to the roof and having lateral extensions, a central chamber located in the jack, chambers located in the lateral extensions and opening from the central chamber, and with their roofs extending upward and outward forming a deflector, a disk suspended within the body part of the jack and serving as an additional deflector, and narrow openings from the under side of the lateral extensions and out of the chambers therein, all substantially as described.

2. In combination with a railway car, a discharge opening through the roof thereof, a lamp secured below the opening, the collector arranged above the lamp with a discharge outlet arranged centrally of a smoke-jack, and a smoke jack secured to the upper surface of the roof and having overhanging side portions with outlet through the jack formed by narrow openings arranged lengthwise of the car body and only in the under wall of the lateral chambers, all substantially as described.

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