

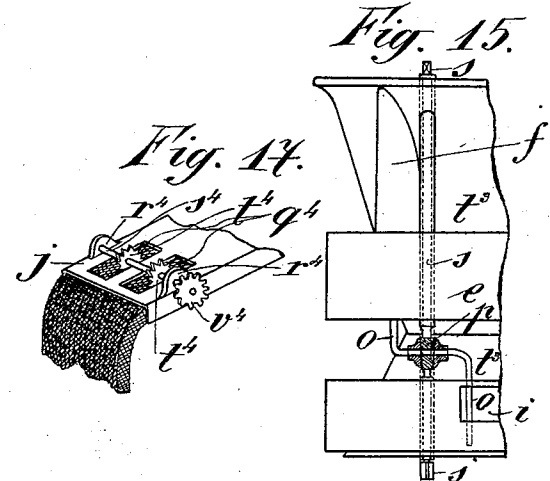
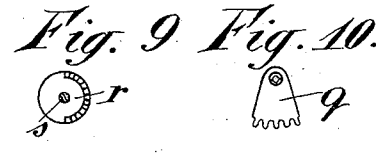
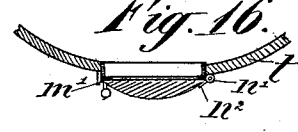
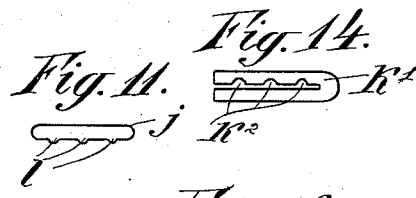
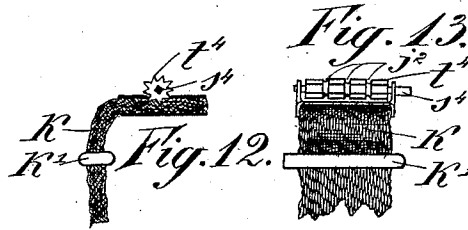
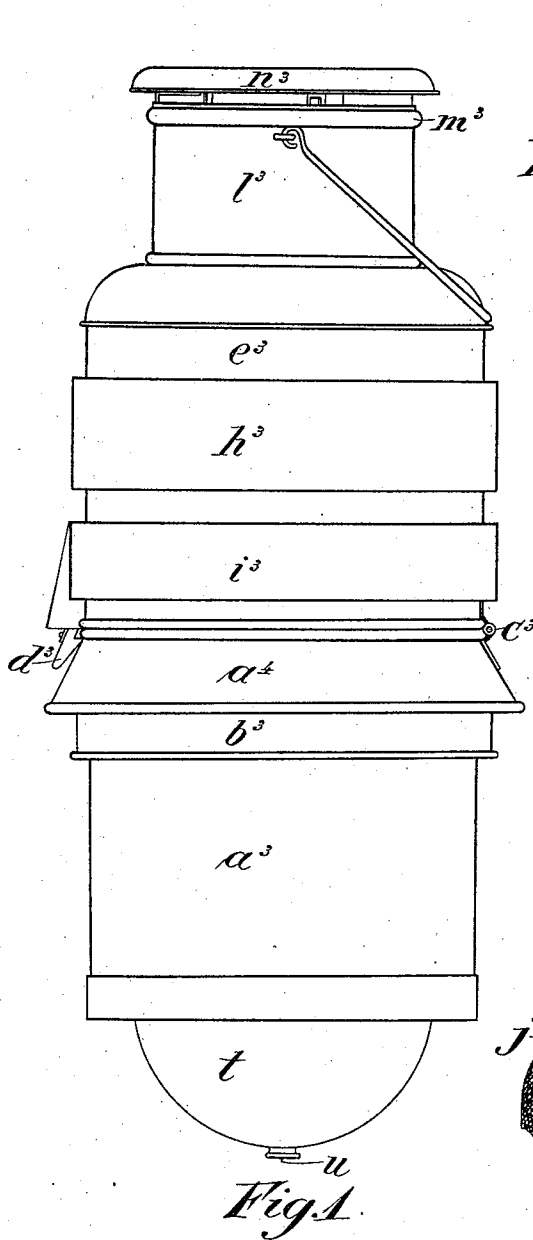
(No Model.)

2 Sheets—Sheet 1.

C. ERBER & C. DIETRICH.
PETROLEUM LAMP FOR RAILWAY CARRIAGES.

No. 580,970.

Patented Apr. 20, 1897.



Witnesses
A. J. Staddon
A. E. Melhuish

Inventors.
Carl Erber
Carl Dietrich
by their Attorney.
A. J. Staddon

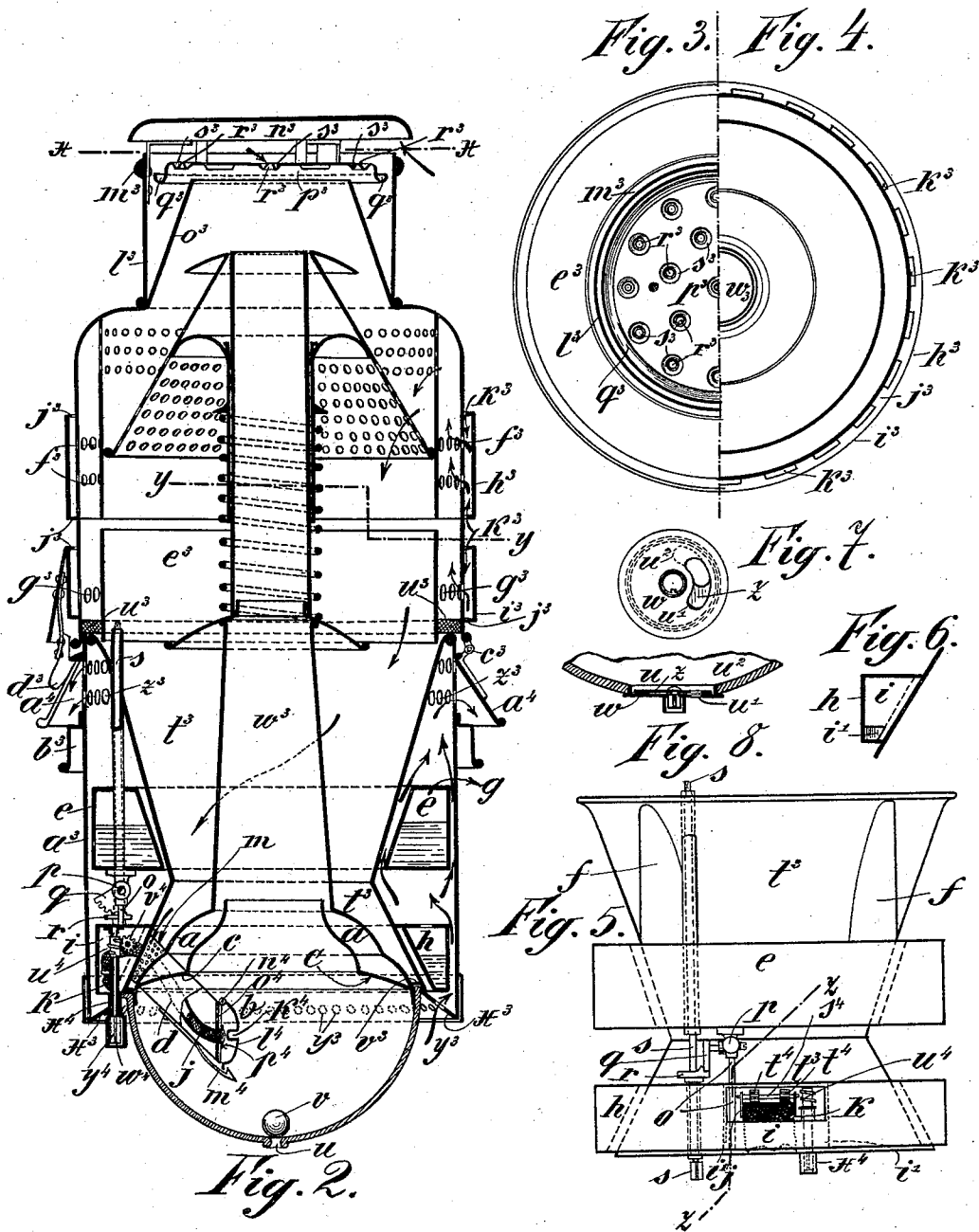
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UNITED STATES PATENT OFFICE.

CARL ERBER AND CARL DIETRICH, OF BUDA-PESTH, AUSTRIA-HUNGARY.

PETROLEUM-LAMP FOR RAILWAY-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 580,970, dated April 20, 1897.

Application filed March 30, 1896. Serial No. 585,477. (No model.)

To all whom it may concern:

Be it known that we, CARL ERBER and CARL DIETRICH, directors of the Ungarische Metallwaaren und Lampenfabriks Aktien Gesellschaft, subjects of the Emperor of Austria-Hungary, and residents of Buda-Pesth, Köbauya, Austria-Hungary, have invented certain new and useful Improvements in Petroleum-Lamps for Railway-Carriages, of which the following is a specification.

This invention relates to petroleum-lamps for railway-carriages which during the greatest storm will burn quietly and be equally ventilated during the running as well as on the stoppage of the train, as the petroleum-reservoir can never get warm, these advantages being secured by the regulation of the flame and of the admission of oil from the interior as well as from the roof of the carriage, and generally by the whole arrangement of the lamp.

The annexed drawings show how the invention is applied.

Figure 1 is a general elevation of the lamp; Fig. 2, a vertical section through the burner; Fig. 3, a section on line $x x$, Fig. 2; Fig. 4, a section on line $y y$, Fig. 2; Fig. 5, side view of part of the interior of the lamp; Fig. 6, a section on line $z z$ of Fig. 5; Figs. 7 to 14, details of the lamp; Fig. 15, modification of Fig. 5; Fig. 16, modification of Fig. 8, and Fig. 17 detail of burner.

The exterior form of the casing of this lamp, as well as the inner construction, (with exception of the movable interior part of the lamp,) is like other carriage-lamps, the essential improvements being in the air-conducts. The casing of such a lamp consists, as known, of the under part a^3 , Fig. 1, placed in the carriage-ceiling, provided with the usual projecting ring b^3 , which rests upon the carriage-roof and is joined to the free standing upper part e^3 of the casing by means of the hinge-joint c^3 and spring-lock d^3 . Hitherto the openings f^3 and g^3 on this upper part e^3 , which conduct air to the burner, were surrounded only by two simple plate-rings, which were open in the upper and the lower part and parallel to the casing, so that a strong wind caught in the rings entered with vehemence in the casing and rendered the flame unsteady and irregular.

In the present invention, as shown in Figs. 2 and 4, these protecting-rings h^3 and i^3 of the openings f^3 and g^3 are provided on their upper and under parts with horizontal flat rings j^3 , so that these protecting-rings receive a Γ -section. These rings are provided on the flats j^3 , close to the wall of the casing, with narrow and regularly-arranged openings k^3 , through which even during the greatest storm the air can pass to the openings f^3 and g^3 with a completely-broken force.

Further improvements consist in the upper part of the casing of the lamp on the chimney l^3 for the escape of the burning gases. Close under the upper border of the latter is provided a collar m^3 , which causes the wind attacking the border of the chimney l^3 to be partly deflected, while only a small part passes under the roof n^3 of the chimney l^3 . The cap p^3 , covering the security-cones o^3 in the chimney and carried by the chimney-roof n^3 , is no longer an unperforated disk with a smooth cylindrical border projecting downward, but the under border q^3 of it is turned upward in form of a channel, while the flat part of the cap p^3 is provided with numerous openings r^3 , which are each surrounded by an annular deep groove s^3 . The turning upward of the border q^3 prevents almost completely the entrance of the wind, which passes eventually from the roof n^3 downward, while the openings r^3 allow the combustion gases to escape easily. The hollows s^3 catch the wind, so that it cannot enter the openings r^3 . The most essential part of the lamp is formed by the new part placed in the under part of the casing, Figs. 2 and 5. This consists of a double cone t^3 , which serves on one side for the admission of the air for combustion and on the other side to isolate the said air entering from above from the air for ventilation entering from below for the petroleum-reservoir. For this purpose this double cone and under part t^3 is well tightened on its upper border simultaneously with the border of the under part a^3 of the casing by a felt ring u^3 , placed in the under border of the upper part e^3 of the casing. On the under border the under part is joined to the interior by a groove v^3 , the top a of the burner-space b carrying a chimney w^3 for the escape of the gases of combustion. With this groove v^3 the part t^3 is seated

upon the border of the glass t , which is carried by a conical flange-like ring x^3 , projecting inward on the border of the under part of the casing a^3 . This ring x^3 is provided on its circumference with openings y^3 , through which the air for ventilation enters around the part t^3 , then to pass under the upper border of the latter through openings z^3 , covered by the protecting-cover a^1 of the under part a^3 of the casing, just over the ring b^3 . The cover a of the combustion-room b is isolated from the flame by a reflector c , distanced from it so that the cover a is only slightly warmed, and also the part t^3 cannot get warm even on a long stoppage of the train. The reflector c is so arranged that it forms by its flat part the continuation of the ring x^3 , which carries the glass bell t , which acts equally as a reflector.

The annular oil-reservoir e is arranged around the upper cone of the under part t^3 with a free space and kept on by means of the cross-bars f , Fig. 5. By this arrangement the oil-reservoir e is well distanced from the burner and can never get warm. Also, the oil-reservoir is provided on its cover with openings g , which permit any gases developing to escape. In addition to this oil-reservoir an annular receptacle h may be arranged, which of course is considerably smaller. In such is a chamber i , that can be reached from the outside, in which enters at the upper part the back end of the wick-holder j . From the latter projects the wick end k to the bottom of the chamber i , in which the pushing and feeding arrangement of the burner-wick is placed. The wick k runs in the curved wick-holder j , which passes from the chamber i to the burner.

The burner consists of a tube d , which is fixed at one end to the reservoir h and passes through the under cone of the part t^3 , the cover a , and the reflector c and is shaped at its free end vertically. This end is closed by a burner-cap l^1 , provided with a horizontal slit k^1 and fixed by a spring m^1 . After loosening the latter it can be opened on a hinge-joint n^1 . Close before its free end the tube d is inclosed by a vertical sieve-wall o^1 , beyond which advances the end of the wick-holder j , provided with a border p^1 . The back end of the wick-holder j projects into the chamber i , from where also the introduction of the wick k is effected. For this purpose this end of the wick-holder j is provided on its upper part with longitudinal slits q^1 , Fig. 17, in which gear the small toothed wheels t^1 , which are arranged on an axle s^1 , reposing in bearings r^1 across the wick-holder j , and which move the wick k on turning s^1 . This turning is effected by a vertical screw w^1 , which gears in the toothed wheel v^1 , seated upon one end of the axle s^1 . The shaft w^1 of this screw w^1 is seated in the upper part in the cover of the chamber i and in its lower part in a socket x^1 , welded to the bottom of the same, from where it can be operated by means of the square-headed rod y^1 . The air

necessary for the burning of the flame passes from the interior of t^3 directly to the burner, for which purpose the tube d of it is provided with many holes m between the part t^3 and the cover. The air enters through the latter and passes through the sieve-wall o^1 to the flame. The feeding of the wick k is effected by the following construction: The oil passes from the reservoir e through a small tube o into the chamber i , where it is sucked up by the wick k . The passing of the oil can be regulated or completely stopped, Figs. 5 and 15, by a cock p , arranged on the tube o between the oil-reservoir e and the reserve receptacle h . For this purpose the top of the cock p carries a toothed arc q , Fig. 10, which engages with a toothed disk r , Fig. 9, which is fixed on a vertical shaft s , and by means of the latter it can be turned from the inside or the outside of the carriage, as this shaft passes through the receptacles h and e and through the part t^3 .

To avoid the toothed disk r and the toothed arc q , the cock p can also be arranged as shown in Fig. 15, so that the shaft s passes through the axle of the cock p while the opening of the latter is horizontal.

The superfluous oil passes from the chamber i through side openings i' of the same, Fig. 6, into the reserve receptacle h , and therefore an overflowing cannot take place. A further regulating arrangement for the regular sucking up of the wick consists, as shown in Figs. 11 to 14, in different modes of making the wick end k . The most suitable is a clamp k' , Fig. 14, one arm of which is provided on the inside with grooves k^2 . This clamp k' is attached across on the wick k from the side and therefore presses the latter together, so that the oil can only pass through the grooves k^2 , Figs. 12 and 13. Instead of the clamp k' the control of the wick k can be effected by the wick-moving wheels t^1 by enlarging the latter, Fig. 13, to a large fluted roller which is provided with grooves j^2 , corresponding to the grooves k^2 in the pressers k' .

The controlling of the wick can also be effected by means of smooth pressers, rollers, or similar arrangements without changing the character of the invention. This part of our invention is applicable to all other lamps having flat or round wicks. By using fluted rollers t^1 the wick-holder j can be provided with longitudinal grooves l , so that it has the section shown in Fig. 11.

The lamp can be lighted from the inside of the carriage, and for this purpose the glass bell t has on its lower part a small opening u , Fig. 2, which is closed by a ball v , lying freely on the inside, which can easily be pushed side-ward with the fuse and by itself rolls back upon the opening u after the lamp has been lighted. Instead of this arrangement the bell t can be provided on its under part with a metal cap w , Figs. 7 and 8, having an opening u' to be closed by a slide z , while the latter has an opening, so that by turning the

slide z the opening u' is closed; also, for closing the opening u may be used a lens n , Fig. 16, which distributes the light and which is held in a frame n^2 and opens on a hinge-joint n' and is provided with the fastener m' .

We claim as our invention in petroleum-lamps for railway-carriages—

1. The combination with the chimney t^3 and interior cone o^3 of the cap p^3 to said cone, the said cap having a downwardly and upwardly turned border q^3 around its edge and having holes r^3 , each of which is surrounded by a groove s^3 for the purpose set forth.

2. The combination with the lamp-body consisting of lower part a^3 and upper part e^3 ,

of an interior sleeve t^3 in the form of two cones meeting at their truncated ends in the part a^3 , an annular oil-reservoir e surrounding the upper cone, an overflow annular oil-reservoir h surrounding the lower cone, a combustion-chamber cover a within the lower cone, a chimney w^3 on said cover, and a reflector c within the said cover.

In witness whereof we have signed this specification in presence of two witnesses.

CARL ERBER.

CARL DIETRICH.

Witnesses:

LOUIS GERSTER,

R. GOLDSCHMIDT.