2 Sheets--Sheet 1.

C. F. JACOBSEN & A. BURGER.

Street Lamps.

No. 139,394. Patented May 27, 1873.

Fig: 1.

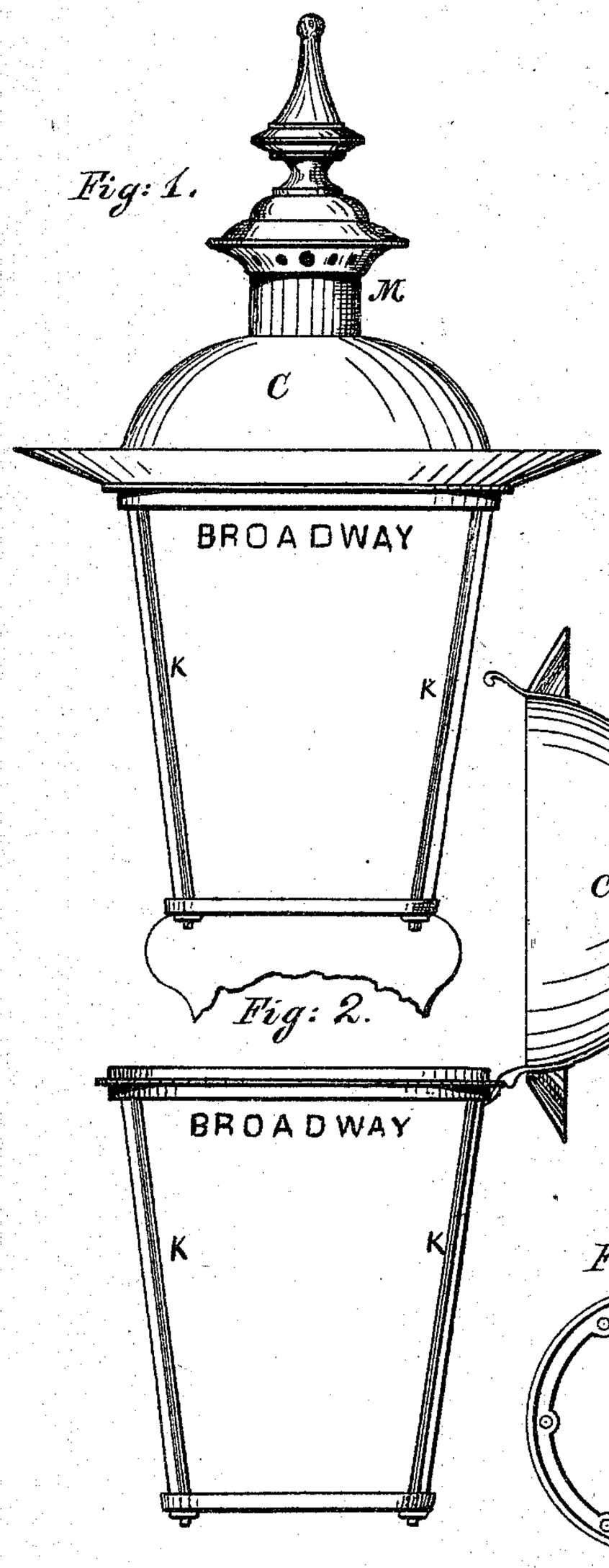
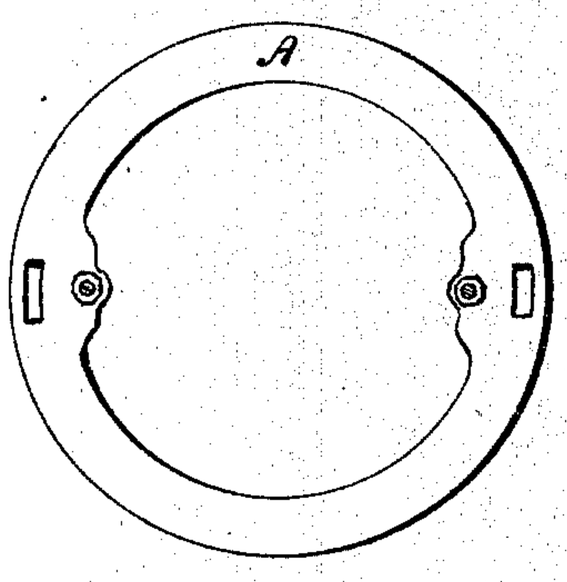


Fig: 2.

Fig: 3.



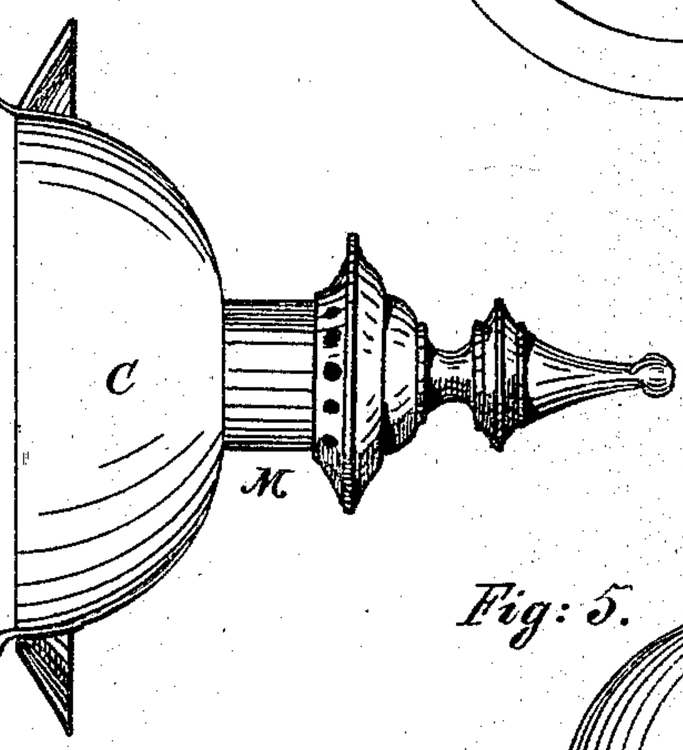


Fig: 4.

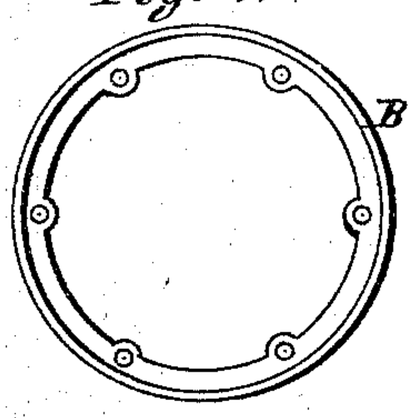
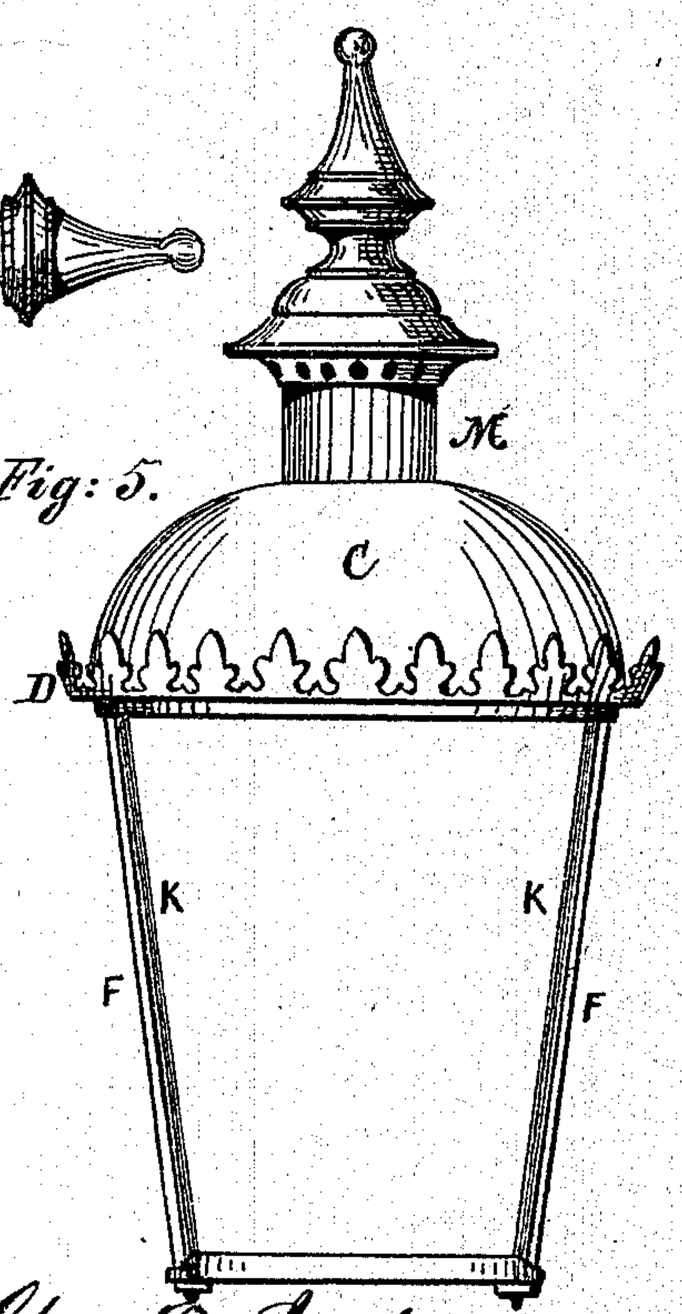


Fig: 5.



WITNESSES

Chas. F. Pansbury

D. B. Shannon

Chas. F. Jacobsen

Alois Burger

INVENTORS

2 Sheets--Sheet 2.

C. F. JACOBSEN & A. BURGER.

Street Lamps.

No. 139,394. Patented May 27, 1873.

Fig: 6.

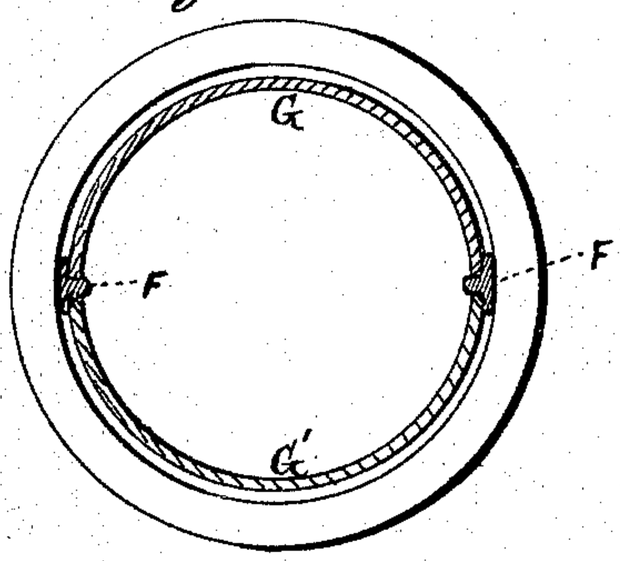


Fig: 7.

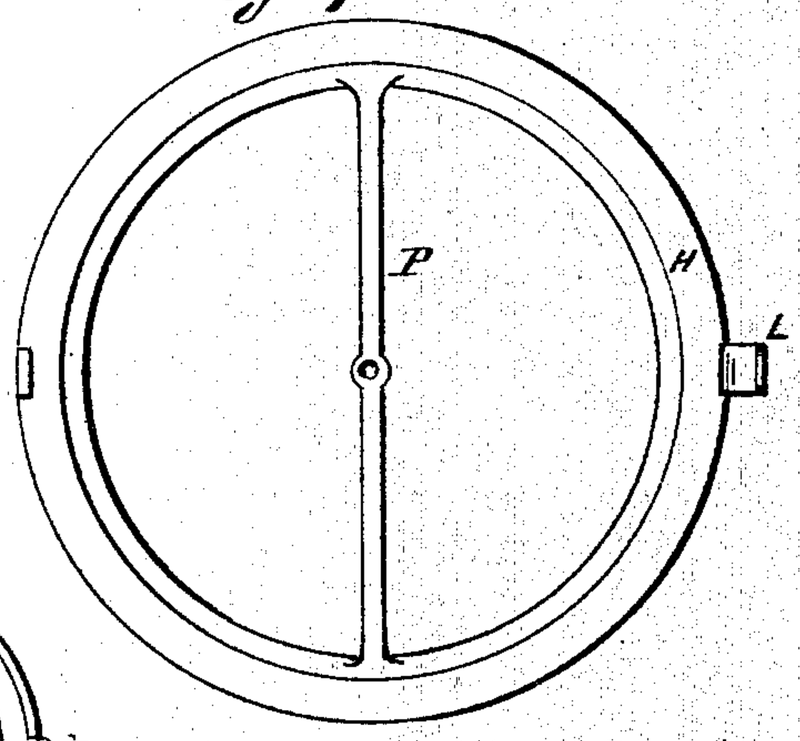


Fig: 9.

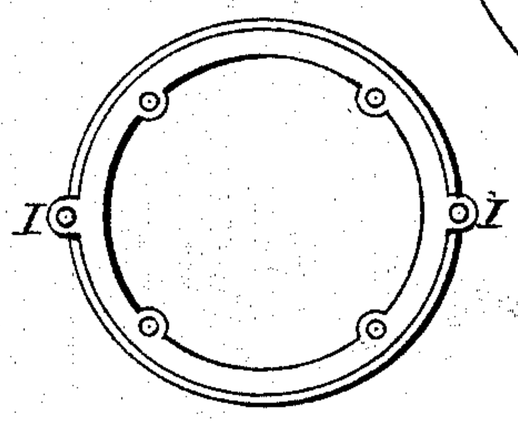


Fig: 8.

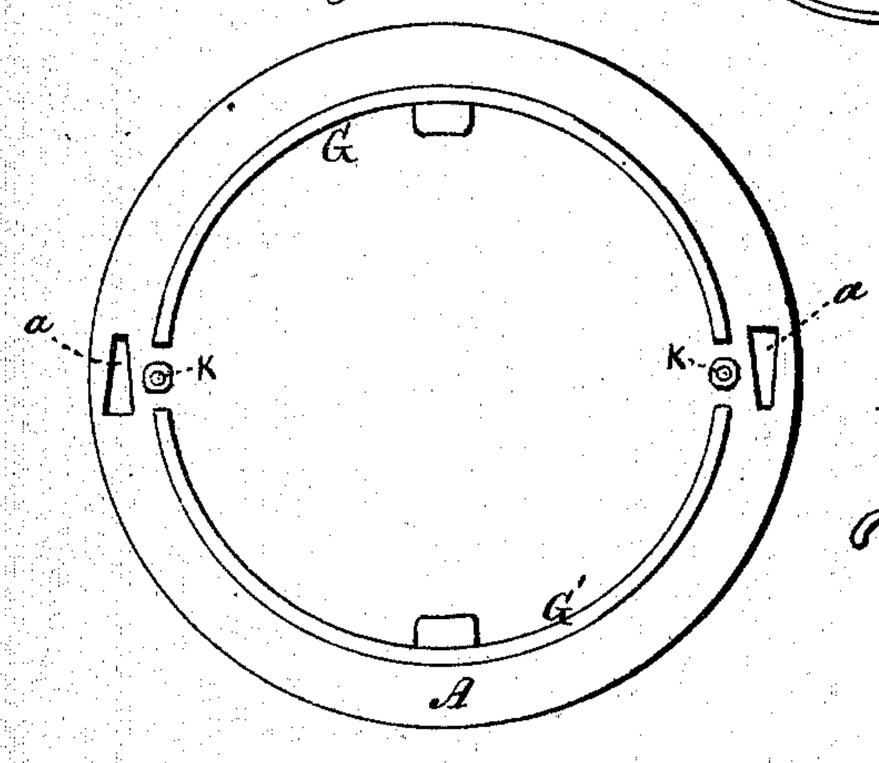


Fig: 10.

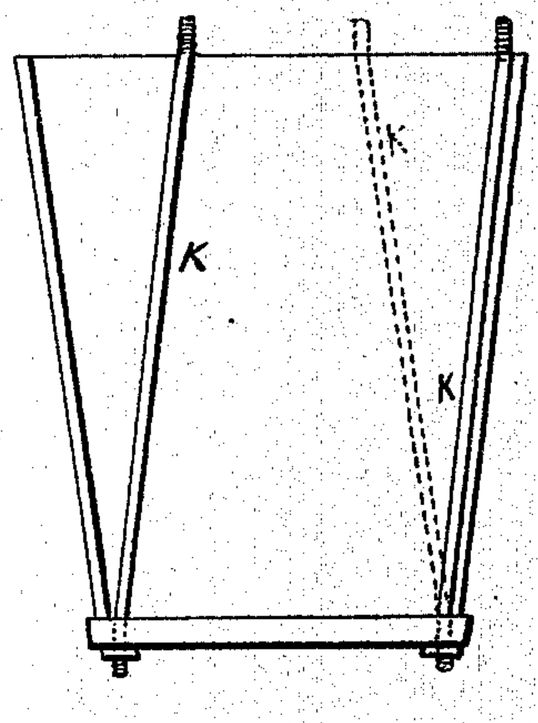


Fig: 11.

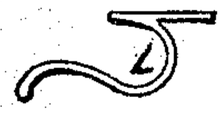
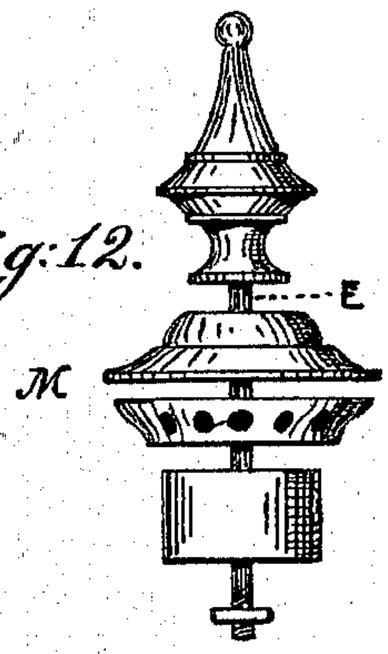


Fig: 12.



WITNESSES

Chas. F. Ransbury

J. B. Shannon

Chas. F. Jacobsen

Alois Burger.

INVENTORS

UNITED STATES PATENT OFFICE.

CHARLES F. JACOBSEN AND ALOIS BURGER, OF NEW YORK, N. Y.; SAID BURGER ASSIGNOR TO SAID JACOBSEN.

IMPROVEMENT IN STREET-LAMPS.

Specification forming part of Letters Patent No. **139,394**, dated May 27, 1873; application filed March 29, 1873.

To all whom it may concern:

Be it known that we, CHARLES F. JACOBSEN and ALOIS BURGER, both of New York, N. Y., have invented certain new and useful Improvements in Street-Lamps; and we do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a complete lamp. Fig. 2 represents the same lamp open and locked in that position. Fig. 3 represents the upper ring of the bottom part of the lantern; Fig. 4, the lower ring of the same. Fig. 5 represents a lamp with a glass top, having a ring to receive and a rod to attach the metallic chimney to it, the bottom portion being shown as made of two pieces of glass, supported by T-irons. Fig. 6 is the upper ring of the lamp, with the edge of the glass shown as held by the T-irons. Fig. 7 is the ring used for supporting the glass top and chimney. Fig. 8 shows the construction of the top ring of the lamp when the glass is in two pieces. Fig. 9 shows the bottom ring, with the lugs for receiving the lower ends of the T-irons. Fig. 10 shows one of the lower glass shades, with the rod turned to enable the glass, when in one piece, to be lifted out. Fig. 11 shows the clip or hinge uniting the lamp and its top. Fig. 12 shows the metallic chimney as made of several pieces, connected together by a rod.

The object of our improvement is to produce a street-lamp having advantages which are not to be found in any of the forms of lamps now known, and to remove the disadvantages and inconveniences which at present impair the efficiency of the street-lamps in use. It consists of a lamp having a dome-shaped top, surmounted by a ventilating-chimney, said top being united by a clip-hinge and spring-catch to a ring resting on top of the illuminating chamber or lantern. The lantern is formed of two pieces of glass, bent into such shape as, when united in the frame, to form an inverted truncated cone, the adjacent edges of the glass halves being received and supported by T-irons attached to the upper and lower rings of the lantern. A modification consists in forming the lantern of one piece of glass in the shape of inverted truncated cone, the top and bottom rings of said lantern being united by rods bent at top and bottom, as shown, so as when turned half round to allow the glass cone to be readily removed, all as hereinafter more particularly described and represented.

At present there are, generally speaking, two forms of street-lamps, one of which consists, in the main, of a four-sided pyramidal frame of tin, having plain glass panes set in the metal bars which support the top of the lantern, the whole being hung from its upper flange in a wrought-iron frame, supported by rods. The other form is composed of a glass globe in one piece, suspended from a rib on the glass in a metallic frame of wrought-iron.

In the form of street-lamps first referred to, which is the most common, the difficulties are these: When a frame of glass is broken it is necessary to take down the lantern for the purpose of replacing the broken glass; and when the metallic frame corrodes, or is otherwise injured in any of its parts, the whole lamp is practically destroyed, because the metallic structure is composed of parts, which are soldered together, and which then form a united whole. This form of lamp is also unsightly, and on that account objectionable; and the metallic frames obstruct the light, because they are necessarily broad, and as numerous as there are faces to the lantern.

The objections to the second form of lamps mentioned are, first, the original expense of the glass globes made in one piece; second, the expense of maintaining them, because they are very liable to be broken, both in the act of lighting them through the aperture in the bottom and by the contraction and expansion of the glass in the frame which sustains it; third, the difficulty of cleaning them and keeping them clean, because the interior is difficult to reach through the aperture below, which is necessarily small, and because, from the shape in which they are made, the dust is deposited on the lower part of the interior surface, and is held there by the glass on which it falls. This form is also objectionable because of the manner in which it is suspended in the wrought frame supported by four long rods exterior to the lamp itself,

which are unsightly and which obstruct the light.

It is also very troublesome to pack this lamp for transportation and to carry it in safety, because of the great size of the glass globe, which is all in one piece, and cannot be packed into any less space for transportation than when set up in use.

In the lamp which we have invented we have completely removed these objections and produced a structure which is cheap to make and maintain, accessible and convenient for reparation, and which offers very slight obstruction to the light, while, at the same time, it is capable of receiving the most beautiful and symmetrical form and appearance, and admits the employment, when desired, of the most elegant and costly materials in its construction, such, for example, as colored glasses and the finest plate-glass. The glass may be engraved or otherwise decorated, while flat, and afterward bent into the proper form. This lamp consists of two parts—the top C and the bottom N—which are united in one complete organization, but which are capable of being used in other combinations beside that in which they are here shown. The main portion of the lamp presents the appearance of a truncated inverted cone, whose surface is composed of glass through which the light shines without interruption, except by two rods, K K, which bind together the two rings A B, forming the two ends of the truncated cone. The first peculiarity of this structure consists in the facts that the two rods, instead of being perpendicular, as they were formerly made, are divergent from the ring and are parallel, or nearly so, to the sides of the cone. By this arrangement two useful effects are produced: First, the rods are more concealed, and, therefore, are less unsightly; and, secondly, they make a firmer structure by the manner in which they combine the top and bottom rings together, it being easier to distort the form when the rods are parallel than it is when they are divergent from each other.

By this method the bar, which, in the arrangement represented in the patent of A. Burger, of November 28, 1871, passed directly across the diameter of the upper ring, is dispensed with, and, instead thereof, two lugs are used on that ring for the purpose of binding the parts together. When the glass shade is made in one piece, if the rods K were set into the bottom plate in holes which were drilled in the line of the direction of the rods when in position, it would be necessary to remove those rods in order to replace the glass when broken. This difficulty is overcome by drilling the holes in the top and bottom plate, in a line perpendicular to the plane of those plates, and bending the ends of the rods K to such an angle with the rods themselves that the ends will enter the perpendicular holes in the rings, where they are secured by nuts *n* screwed onto them, outside of the plates. With this arrangement, when it is desired to remove the glass shade the nuts are unscrewed from the upper rings of the rods, the top ring A is lifted out, and one of the rods is turned one-half revolution, the effect of which is to make it incline inward as much as it inclines outward from the perpendicular when in position; and the glass shade can then be lifted over the rods without any difficulty, and, when replaced, the rod which has been turned out of its position is turned back to its original place, the top ring is slipped over both rods, and the nuts screwed down again.

Another and more important advantage of our invention consists in the arrangement of this part of the lamp, whereby the glass-shade may be made in two pieces, divided vertically. As thus arranged the two rods which unite the top and bottom rings are formed in the shape of a T-iron, having the head of the T exterior, and the rib projecting inward, as shown. It is apparent that, with this construction, the two glasses, each having the form of the surface of half a cone, can be slipped in from the top, and, if properly shaped, will rest upon the bottom ring, and be supported by the T-iron from falling outward, and at the same time be prevented from being pressed inward by the rib of the iron, against which the vertical edges rest. This arrangement obviously admits of cheapness of construction, convenience for all the purposes of a street-lamp, and an elegance which cannot be attained by any other means now known. The glasses G G′ are cut into the proper shape out of plates, and then bent over a former, in the manner well known for such purposes, at a cost much less than an entire shade can be blown, and at the same time the most perfect plate-glass can be used when so treated, and, as before observed, can be decorated or colored in any desired manner before it is bent, and so present the most finished and elegant appearance that can be obtained upon sheet-glass, whether plain, colored, or figured. If the glass in this lamp should be broken, it is only necessary to replace the broken part; whereas, if a glass made in one piece be broken, the expense of repairing is greatly increased; so that by this arrangement the first cost is very much diminished, the cost of the reparation is also reduced, and a more elegant glass can be used than can be conveniently produced when it must be either molded or blown.

It is important, also, that street-lamps should be capable of exhibiting the names of streets. This desirable object is attained in our lamp at a very slight expense, and without any special arrangement for the purpose. The name is painted upon the glass at or near its upper edge, and the glass may be roughened for the purpose when in the plate, or when molded, if the shade is made entire.

For the purpose of shipping and transportation lamps made in two halves have a very great advantage over those made in one piece, because the sections can be packed one inside of the other, in a very small compass, and can

be carried in much greater safety than if the glass were entire.

It is obvious that this principle may be applied by using more than two T-iron rods; but it is better to use only two, as all the practical advantages can be attained with that number; and it is also apparent that the T-iron can be reversed, and the glass be applied from without instead of from within, holding it by clips for that purpose; but that is not so safe or convenient a way as that we have described, although it would involve the same principle of construction.

The top or cover C of the lamp is made complete in itself, and can be used in combination with either form of bottom described, or with others. When it is desired to use glass in this cover, it is necessary to have a ring, corresponding in size with the upper ring of the bottom part of the lamp, upon which, as a base, the glass dome or cover rests. This ring has a cross-bar, P, for the purpose of holding the bolt which binds together the entire top, and the glass dome C has an opening through it at its vertex, upon which the metallic chimney M is mounted for the purpose of ventilation. This chimney is composed of separate parts fitting each other, which are drawn and held together by a bolt, E, passing through the entire structure. The ring H, which supports this top is provided with lugs or catches, which enter slots in the upper ring of the bottom part of the lamp, to hold the top in place, and to permit it to be conveniently removed for the purpose of cleaning or repairing the lamp. One of these clips is formed in a peculiar way, being shaped so that while it permits the top to be open as if it were hinged, it will arrest the movement of the top when it is opened far enough to permit access to the lamp. The shape of this clip is that of a reversed curve, and the extreme end of it catches under the lower side of the plate through which the slot passes, and so holds the cover from falling further down.

The rings represented in Figs. 3 and 4 may be made of cast-iron, or any other metal. The lower ring, Fig. 4, shows six holes, four of which are for bolts which fasten the lamp to the iron braces of the lamp-post, and two are for the rods which bind the upper and lower rings of the lamp together. In some cases two of these holes may be dispensed with, as the two upper rods can be fastened in the same holes provided for the four lower rods.

A in Fig. 2 represents the glass frustum, whose appearance, when viewed from the side, as shown in the drawing, will be very nearly the same, whether the glass is entire or made in two parts.

In Figs. 1 and 2 the tops are intended to be shown as made of metal; but in Fig. 5 the top is of glass, and the combination of the base-ring, the glass domè, and the metallic chimney is there shown as made in sections B, C, D, and E, and joined by the rod passing through the same.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A street-lamp consisting of an inverted truncated cone of glass, either solid or formed in pieces as set forth, surmounted by a dome-shaped top, having a ventilating-chimney, the several parts being supported and held in place by rings and rods formed and connected in the manner described and represented.

2. In a street-lamp a frame for supporting a truncated cone of glass formed in one piece, said frame consisting of upper and lower metallic rings united by rods placed inside of the glass cone and bent as described, so that when turned in the manner stated, they will allow of the ready removal of the cone.

The above specification of our said invention signed and witnessed at Washington, this 28th day of March, A. D. 1873.

CHAS. F. JACOBSEN.
ALOIS BURGER.

Witnesses:
W. P. BELL,
J. B. SHANNON.