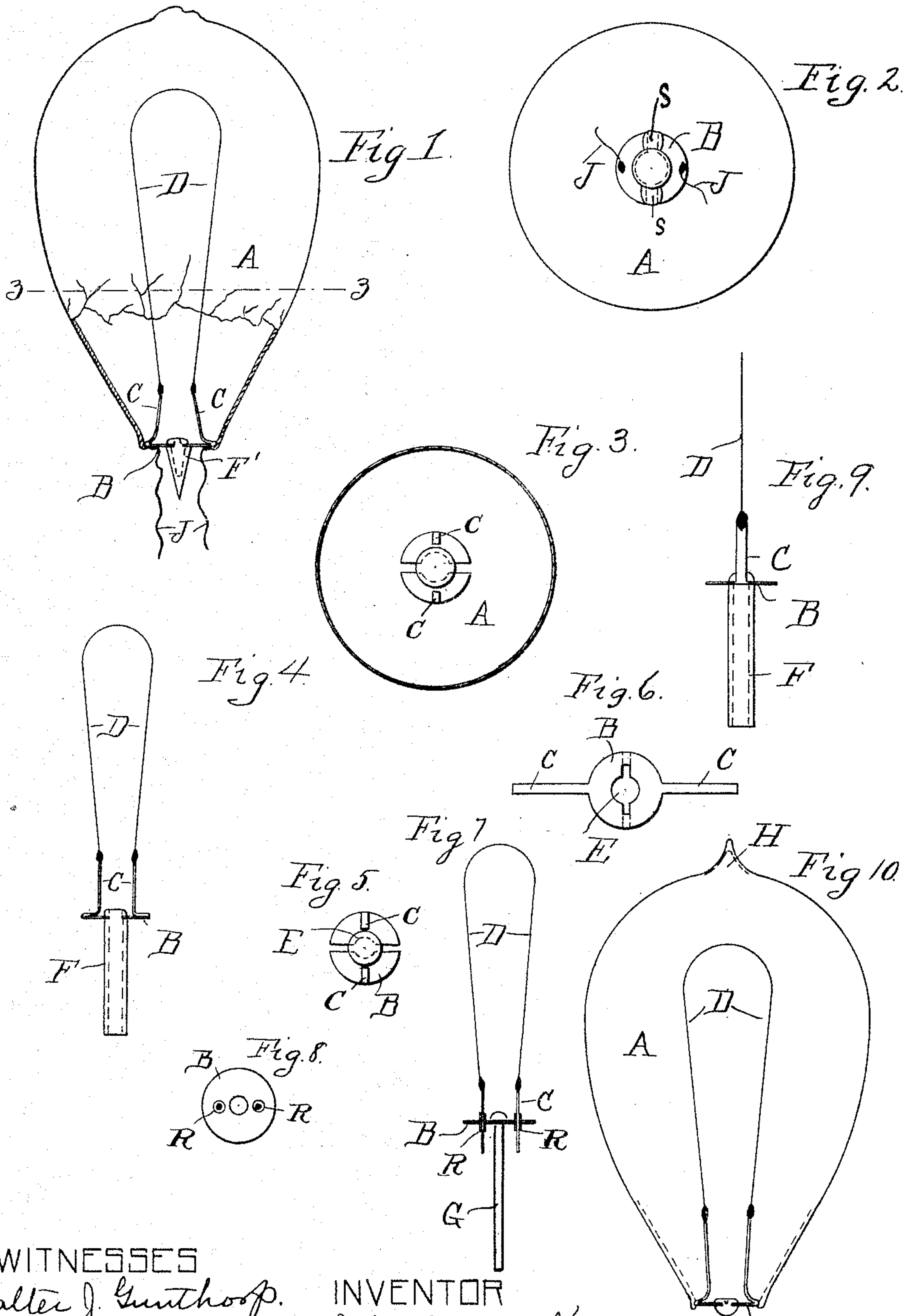


(No Model.)

J. VON DER KAMMER.  
INCANDESCENT LAMP.

No. 492,809.

Patented Mar. 7, 1893.



WITNESSES  
Walter J. Gunthorp.  
Thomas Rossiter

INVENTOR  
John Von der Kammer  
By *Frederick W. Parker*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JOHN VON DER KAMMER, OF CHICAGO, ILLINOIS.

## INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 492,809, dated March 7, 1893.

Application filed January 23, 1893. Serial No. 459,444. (No model.)

### *To all whom it may concern:*

Be it known that I, JOHN VON DER KAMMER, a subject of the Emperor of Germany, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Incandescent Lamps, of which the following is a specification.

My invention relates to incandescent lamps, and has for its object to provide certain new and useful improvements in incandescent lamps, and particularly to provide means whereby a most economical lamp can be made; and whereby the use of conductors passing through the glass can be avoided, and whereby the long inleading wires commonly employed may be dispensed with so as to avoid among other things the difficulties and dangers incident to sealing the wires in along their lengths; and to avoid bends, curves and the like, at or about the base of the lamp, so as to make it easy to use heat about the base of the lamp for repairs and the like without endangering the lamp; and to provide a receiver or bulb made in part of metal, and in part of glass, and to accomplish other objects and results hereinafter more fully set forth and specified. Where inleading wires are used, much difficulty is experienced with them as is set forth in various patents and other writings relating to the subject. In such cases, the inleading wire must pass through a considerable length of glass, or be surrounded by and fuse into glass along a considerable portion of its length in order to make a tight seal. This, of course, involves having considerable masses or portions of glass at the base of the lamp, through which such wires can extend. All this is unsatisfactory, and leads to many disadvantages, not here necessary to enumerate. These leading in wires and conductors which pass through the glass are made of platinum, a high-priced metal, and in this shape, that is of conductors leading through the glass or platinum conductors, it is very difficult, if not impossible, to recover such metal for successive use, and when recovered, it must be refined, and again drawn into wire, which involves loss, expense and deterioration of the metal. It is therefore an important part of my invention to substitute for these small inleading wires and conductors passing through the glass comparatively

large masses or plates of metal, which form a portion of the globe or receiver, being secured thereto only along their edges, so that the metal can be recovered in the form of such plates or masses again and again without being refined, and hence without loss or deterioration. These sheets of platinum or plates of platinum are shaped and applied at the base of the receiver or globe in such manner to enable me to dispense with the seal pieces, stems glass tubes and glass wire supports commonly employed, and it also dispenses with the inwardly projecting portions of glass and the like injurious or disadvantageous features and devices commonly found in incandescent lamps. This use of the metallic base also enables me to dispense with the difficult and dangerous process of sealing or fusing glass upon glass, as in the ordinary form of constructing an incandescent lamp, for where this process is followed out it frequently occurs that the two portions of glass brought together to be fused will have interposed between them foreign substances which render a good seal difficult, and involve a certain percentage of loss of lamps in the process of manufacture. The sealing of the metal base upon or into the glass globe I have found makes it easy to obtain a safe and satisfactory vacuum bulb for the reason that the glass being brought around or over the edge of the disk or base plate which forms a part of the bulb or receiver may be fused there on the metal so as to form a safe seal.

I have shown a number of modifications of my invention, the use and operation of which may be readily understood.

My invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a side view part sectional of a lamp containing the metal base portion of the bulb or globe. Fig. 2 is a bottom view of the bulb with wires attached. Fig. 3 is a horizontal section on the line 3, 3 looking downwardly. Fig. 4 is a side view of the bottom plate and the charging tube on which it is fixed, and the filament. Fig. 5 is a plan view of same with filament removed. Fig. 6 is a plan view of the base plate punched out ready for use. Fig. 7 is a side view of a modification of the base plate and attached parts. Fig. 8 is a plan view of such modified base plate. Fig.



9 is a side elevation of the device shown in Fig. 4. Fig. 10 is a view of the lamp bulb completed with the exterior wires removed.

Like parts are indicated by the same letter in all the figures.

A is a bulb formed in part of glass, and in part of metal. The lower metallic portion or base B is preferably divided into two parts, as indicated in various diagrams. It may have two upwardly projecting terminal strips C C, to which the ends of the filament D may be attached. The base plate B and the arms C C are preferably stamped out in a single base plate, but when applied to the lamp, these two portions are separated.

E is a hole or aperture through the plate. The base plate may be secured upon the tube F or stem G, according to the manner in which it is to be applied to the lamp. If the tube F is employed, the lamp globe may be discharged or charged or both through such tube; but if the stem is employed, the charging and discharging may take place through the top of the globe as at H. When the tube is used, after the lamp is completed, it is fused off as at F'.

J J are the exterior wires, which may lead each to one of the portions of the metallic base, though of course any sort of connection can be made with such plates, as by the use of springs or other elements or features of the finishing base.

I do not dwell further upon the finishing base and parts necessary to bring the current to the lamp, since they are capable of wide variation without departing from the spirit of my invention.

I prefer to charge my lamp or globe with a suitable element, substance or gas, though of course, the features of construction here shown may be employed in connection with an exhaustion or vacuum globe.

The metal sheets are substantially at right angles to the glass portion of the receiver wall at the point where they are fused together.

The metal plate or plates of the base of the lamp may be understood by an inspection of the drawings. The base in its preferred form is composed of two substantially equal parts of metal connected by the glass pieces or portions S S. The whole is mounted upon a glass stem or tube. This base so formed is inserted in the lower slightly prolonged end of the receiver and is of such size as to fit snugly within such receiver. The lower end of the receiver is then fused against the edge of the base which is almost at right angles to the inner surface of the receiver, and the lower portion of the receiver is fused around the edge so as to extend on to the outer surface of the metal of the base. Conductors may be employed being led through apertures in the base plate, the base plate in that case forming one continuous metallic portion, and the conductors leading therethrough being surrounded

therein by glass tubes or portions R, R. When the base is composed of two or more separated sheets, metallic conductors might be led through such portions each fused upon a metal sheet;—the sheet metal of course is preferably composed of platinum. When the plate metal is to be recovered, the glass portion may be broken off near to the edge of the metal, the base part may then be heated and dipped in water when the glass will separate from the metal, and the metal plates will be ready for use. The filament and the exterior conductor or wire may be connected with the metal plates in any desired manner.

In Fig. 1 I show a lamp which has been exhausted from the bottom, and in Fig. 10 a lamp which has been exhausted from the top, and in either case the fluid inserted is introduced at the point of exhaustion. When a metal base is used with conductors which pass through the same and through bits of glass or the like embedded in such plate or metal base, the metal base may be of a single sheet or plate; but if the conductors are in metallic contact with such plates, then the plate should be divided into two parts as indicated in some of the figures.

I claim—

1. In an incandescent lamp, the combination of a receiver or globe having its walls of glass and base composed partly of glass and partly of metal, with an exhaust and charging tube passing through such metal base and opening into the receiver.

2. In an incandescent lamp, the combination of a filament and conductors with a receiver or bulb, whose walls are composed in part of glass and part of metal, the glass portions fused upon the metal substantially at right angle thereto and upon the outer surface only of the metal part.

3. In an incandescent lamp the combination of a substantially flat metallic base composed of two portions in the same plane connected by a bridge of glass or the like to form a flat continuous base with a glass portion rising from about the edge of said base fused upon the edge and outer surface only of such base and forming therewith a receiver or globe, with a filament supported upon such metallic base and conductors leading to or through such metallic base.

4. In an incandescent lamp, the combination of a receiver made partly of glass and partly of sheets of metal, said sheets at the base of the lamp, a carbon filament within the receiver, conductors leading the current to the sheets in the base of the lamp and upwardly bent portions of the metal sheets to each of which one end of the filament is secured.

JOHN VON DER KAMMER.

Witnesses:

FRANCES W. PARKER,  
EMMA ELLIOTT.