(No Model.) 2 Sheets—Sheet 1.

J. W. CUNNINGHAM.

LENS HOLDER.

No. 548,965. Patented Oct. 29, 1895.

Fig. I.

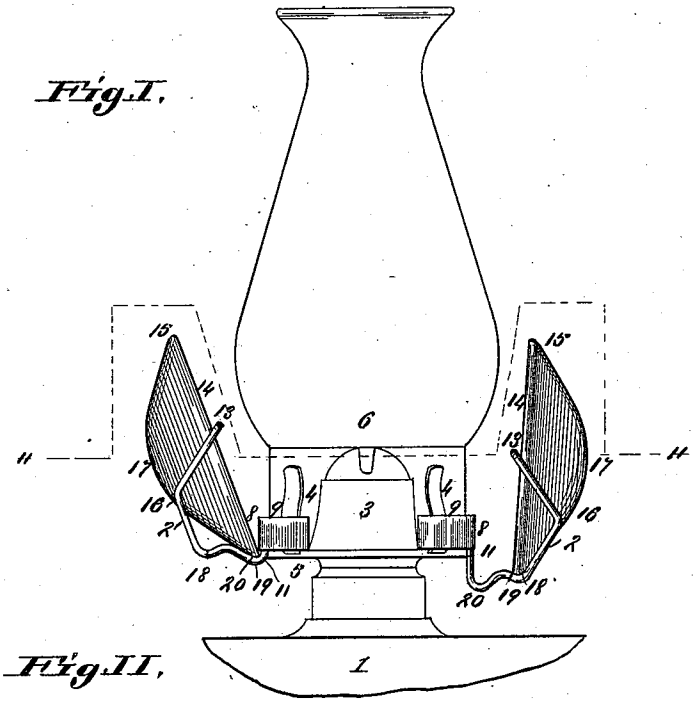


Fig. II.

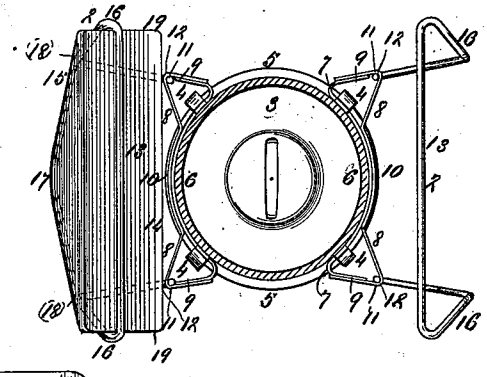


Fig. IV.

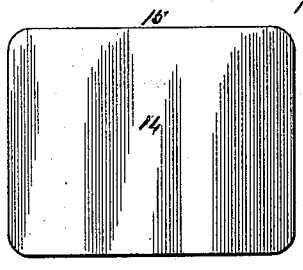
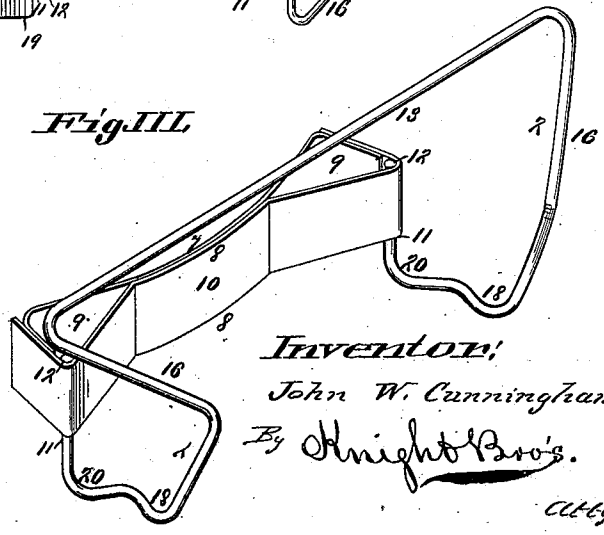


Fig. III.



Attest:
Walter E. Allen
Geo. E. Crane

Inventor:
John W. Cunningham.
By Knight Bro's.
Atty's.

(No Model.) 2 Sheets—Sheet 2.

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Fig. V.

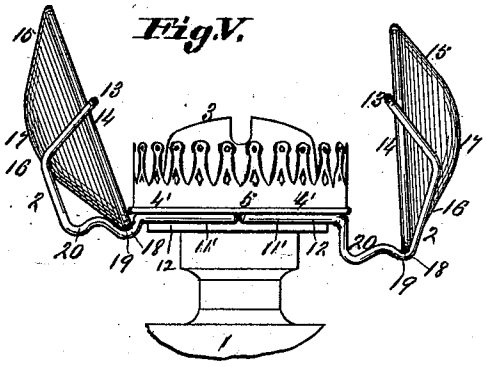
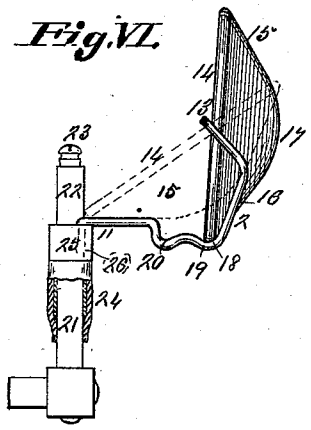


Fig. VI.



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Walter E. Allen.
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Inventor:
John W. Cunningham.
By Knight Bros.
Atty's.

UNITED STATES PATENT OFFICE.

JOHN W. CUNNINGHAM, OF ST. LOUIS, MISSOURI.

LENS-HOLDER.

SPECIFICATION forming part of Letters Patent No. 548,965, dated October 29, 1895.

Application filed August 20, 1892. Serial No. 443,585. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. CUNNINGHAM, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Lens-Holders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to lenses and holders for sustaining said lenses in different positions adjacent to the flames of lamps, gas-burners, &c.; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a detail elevation of a lamp, showing diverse forms of the holder attached and the lenses adjusted at different angles. Fig. II is an upper plan view with the chimney in section on the zigzag line II II, Fig. I. Fig. III is an enlarged perspective view of the lens-holder with its spring-strap attachment. Fig. IV is a view of a lens detached from its holder. Fig. V is a detail elevation of part of a lamp, showing a modification of the lens-holder. Fig. VI represents a vertical gas-burner or jet-tube to which one of my lens-holders is secured.

Referring to the drawings, 1 represents the reservoir of a lamp to which my lens-holder 2 is attached. 3 is the burner to said lamp; 4, the spring chimney-posts that surmount the disk 5 of said burner, to which said disk clamps are secured, and 6 is the glass chimney, the base of which is seated in said clamps.

7 represents the inside fold, and 8 the outside fold, of the attachment-strap holder, which is made of brass or other suitable metal, and the interfolding end loops 9 of said attachment-straps are secured together by soldering or other suitable means, and said loops engage, respectively, on the clamping-posts 4, that hold the chimney in position, while the intervening curved straps 10 of both folds between the loops embrace the base of the chimney, and thus strengthen their hold.

The lens-holder 2 is preferably made of brass wire, but may be of other suitable metal, and its attachment-stems 11 may be soldered at 12 to the inside of said loops 9 of the strap-holder. 13 represents the inside supporting-arm of said lens-holder, which passes across the inside face 14 of the lens 15, and 16 are the angle-loops, which turn around and embrace the convex face 17 of said lens.

The lens 15 has no permanent attachment to the holder, but is both adjustable in the holder to throw a vertical or an intermediate inclined light, and the same lens is removable and transferable from one lamp or gas-jet to another and may be used at pleasure with either. 18 represents the primary bed-curves at the feet of said embracing sections of the holder, in which bed-curves the lower edges 19 of the lens rest when the lens is adjusted to an approximately-vertical position, as shown in Figs. I, V, and VI. 20 represents secondary bed-curves in said holder, which are similar to those shown at 18, but which, being nearer the burner, allow the lens to cant over to an inclined position, so as to concentrate the rays of light at a downward angle. The said attachment-stems 11 may be elongated when preferred, as shown on one of the holder attachments in Fig. I, when it is desired to concentrate the rays of light at another diverse angle from the lamp to those which are shown in the short attachment-stem holder on the opposite side of said Fig. I.

In Fig. V is shown a modification which, like the other modifications, embodies substantially the same invention with that of the first-described form, and which modification is adapted as an attachment to lamp-burners which have a continuous flange-clamp chimney-holder 4′ surmounting the disk. In this modification the attachment-straps 7 and 8 are dispensed with, and elongated horizontal attachment-stems 11′ are soldered or otherwise permanently secured to and beneath the disk 5 of the burner.

In Fig. VI is shown another modification, in which my invention is adapted for attachment to a gas jet or burner 21 by means of the use of a supernumerary jet-tube 22, of any required length, provided with its jet or burner 23, which jet-tube is seated in the top of a gas-tight socket 24, which may be made of rubber or of any other suitable material. The bottom of said socket fits snugly around the primary jet-tube that said supernumerary tube surmounts, and the top of said socket fits as

snugly around the supernumerary gas-jet tube, so as to make tight joints, through which the gas cannot escape.

25 represents a metal collar, which fits firmly around the supernumerary gas-jet tube 22 immediately above the socket 24, on which it in a measure rests. 26 are sockets within said collar, in which sockets the attachment-stems 11 of the aforesaid lens-holder 2 are seated and secured, the attachment ends of said stems being bent at an angle from the main body of the stem, as shown in Fig. VI, to accord with the required position of the holder. The arm 13 and bed-rests of said holder in this modification conform to those already described, with the exception that the attachment-stems 11 run in somewhat extended horizontal positions from the secondary bed-rests 20 to the sockets 26 of the collar 25, in which their ends are seated and secured.

By the above arrangement it will be seen that the foot of the lens has three bed-rests, as shown, respectively, in full lines in Fig. VI, in a vertical position, resting in the primary bed-rest 18 at one extreme, and as shown in broken lines at the other extreme, in which the foot of the lens rests against the supernumerary jet-burner tube in its most inclined position; also, said lens may be placed in an intermediate position, in which its foot occupies the secondary bed-rest 20.

The operation of the device is as follows: When my lens 15 and its adjustable holder attachment 2 are to be used with the ordinary coal-oil lamp, said lamp having the spring-clamps 4, that hold the glass chimney in place, the attachment-strap holder, constituted of the inner and outer folds 7 and 8 and interfolding end loops 9, has said loops mounted on said clamps 4, the intervening curved strap of said folds 7 and 8 constituting a brace against the base of the glass chimney. It will be seen that my adjustable lens-holders always remain so, because there are no jointed parts therein to break or get out of repair or to handle when heated by the lighted lamp or jet. It will also be seen that my lens is adjustable within the holder to a vertical and to an intermediate inclined position, as shown in Fig. VI, so as to concentrate the rays of light in any required direction by the simple moving of the lens itself from one bed-seat to another within the holder. Again, it will be seen that one lens or pair of lenses is transferable from one lamp or gas-jet that is provided with my lens-holder to any other that is so provided, so that if the user is going from one room or office to another all that he requires to move to utilize my device is simply the glass lens itself, and it is useful alike in conjunction with any lamp or gas-jet to which my holder is attached; also, with my transferable holders shown in Fig. I, II, and III the lens and holders are both transferable from one lamp to another, as also is the holder and lens shown in Fig. VI.

Another advantage of my lens being entirely free, removable, and detachable from any metal frame is that it is perfectly free to expand with heat and contract with cold and so is not liable to burst or crack, for there is no frame around it to bind the lens, and by withstanding its free alternate expansion and contraction, to which said lens is liable under the influence of the flame or jet, and the withdrawal of the same to cause said disaster, and, lastly, another important advantage of my removable lens is that there is no corroding metal frame to blur the glass, and also said glass lens has merely to be lifted from its holder and is free from all foreign substances for washing and burnishing to make it perfectly transparent, and also the lens-holders are easily removable from one burner or jet-tube to another, except in the modification shown in Fig. V.

I claim as my invention—

1. The combination of a burner, an embracing bent holder 2 attachable to burner, said holder being provided with primary and secondary bed curves, and the lens 15, arranged to rest in said bed curves, and arranged to be changed in position in said holder, substantially as described.

2. The combination of a burner, a holder comprising the inside rod 13, the embracing angle loops 16 and primary and secondary bed curves in which a lens may be changeably seated, substantially as described.

3. The combination of a burner, the chimney 6, the spring posts, the disk 5 on which said posts are mounted, the folded strap attachment having the interfolding end loops 9 that are mounted on said posts and the lens holder, having attachment stems secured to said loops of said strap attachment, substantially as described.

JOHN W. CUNNINGHAM.

In presence of—
BENJN. A. KNIGHT,
ALBERT M. EBERSOLE.