(No Model.)

S. B. H. VANCE.

COMBINED GAS AND ELECTRIC LIGHT FIXTURE.

No. 305,984. Patented Sept. 30, 1884.

Fig. 1.

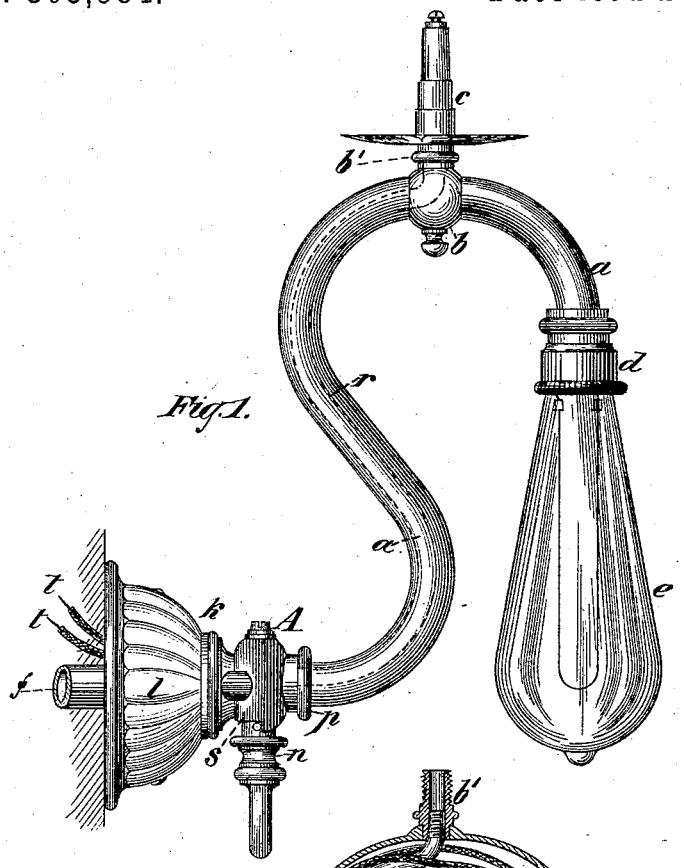


Fig. 4.

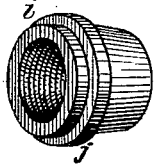


Fig. 3.

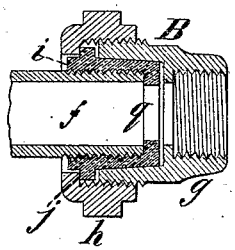


Fig. 2.

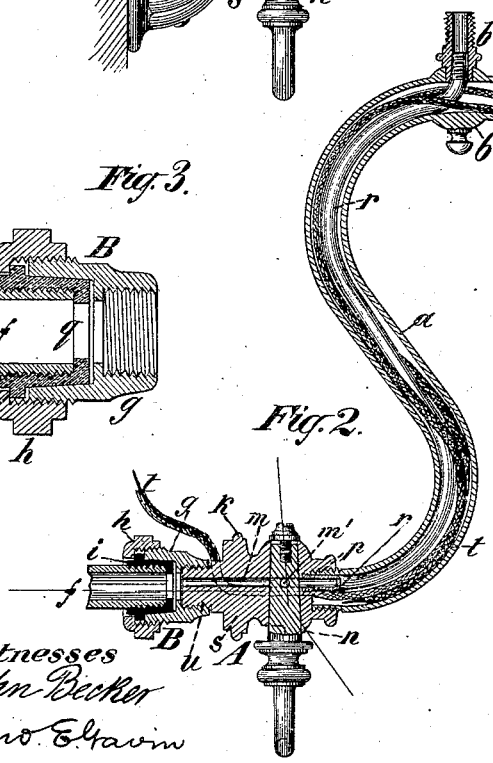


Fig. 5.

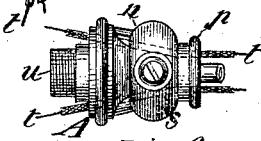


Fig. 7.

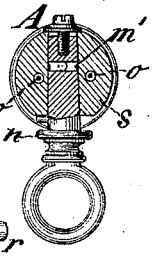
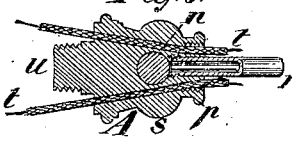


Fig. 6.



Witnesses
John Becker
Jno. E. Tavin

Inventor
Saml. B. H. Vance
by Chas. M. Higgins
Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL B. H. VANCE, OF NEW YORK, N. Y.

COMBINED GAS AND ELECTRIC-LIGHT FIXTURE.

SPECIFICATION forming part of Letters Patent No. 305,984, dated September 30, 1884.

Application filed April 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. H. VANCE, of New York city, New York, have invented certain new and useful Improvements in Combined Gas and Electric-Light Fixtures, of which the following is a specification.

My invention applies to that class of fixtures in which the arms of the chandelier or bracket are provided with gas-burners and electric lamps, with ducts conveying the gas and wires to the respective parts, and means for insulating the fixture bodily from the gas-pipe, so as to prevent grounding of the current in case of accidental metallic contact of either wire with the fixture.

My improvements aim to render the connection of the fixture with gas-pipe and conductors simple, neat, and reliable, to provide distinct ducts in the fixture for gas and wires, and to fully conceal and protect the passage of the wires into the fixture, and to render the exterior of the fixture neat and finished in appearance.

To these ends one feature of my invention consists in the form of coupling between the fixture and gas-pipe, which may be briefly described as a union with an interposed insulating-packing between the union and gas-pipe, consisting of a tapered insulating-plug which screws tightly onto the gas-pipe and fits conically into the socket of the union, so as to make a gas-tight joint with both parts, and thus prevent the escape of gas, while insuring the insulation of the fixture from the gas-pipe, and at the same time enables the connection to be made very easily, and renders the connection very strong. I also arrange the gas stop-cocks or valves at the root end of the arms, or where the wires and gas enter the arms, and I perforate the casing of the stop-cock with a way or ways for the wires on one or both sides of the valve-plug, and I extend pipes from the valve-casing coincident with the wire and gas ways thereof to the lamps and burners, respectively, the said pipes being preferably inclosed one within the other. My invention, therefore, lies chiefly in the features above outlined, as hereinafter fully set forth.

My improvements may be applied either to the stem and arms of pendants or chandeliers, or to the arms of wall-brackets; but in the drawings I illustrate the application of the invention to wall-brackets only, as its application to other forms of fixtures will be obvious.

In the drawings, therefore, Figure 1 represents a side elevation of combined gas and electric-light fixture in the form of a wall-bracket provided with my improvements. Fig. 2 is a sectional view of the same with lamp and burner and wall-plate removed. Fig. 3 is an enlarged sectional view of the insulating-coupling, and Fig. 4 a perspective of the tapered insulating-plug removed. Fig. 5 is a plan view of the gas-valve; Fig. 6, a sectional plan, and Fig. 7 a cross-section thereof, showing the passage of the wires through the same.

Referring to Figs. 1 and 2, *a* indicates the main or external tube of the bracket-arm, which in this illustration is shown curved into the form of an **S**, but which, of course, may be fashioned in any other design. On this tube *a*, preferably at the crest of the upper bend, is arranged the bulb or fitting *b*, from which the gas-burner *c* rises, while on the free end of the tube is the seat or socket *d*, for the electric lamp *e*. The seat for the electric lamp is thus placed on the downwardly-turned end of the tube, so that the lamp fits pendently thereon, as usual; but the lamp may of course be arranged in any other suitable manner, as will be understood.

Now, *f* indicates the end of the gas-pipe which projects from the wall, and A indicates the gas-valve of the bracket-arm, which, as shown, is connected with the main tube of the bracket-arm at its root end, or where the fixture connects with the gas-pipe, as will be understood from Figs. 1 and 2.

Between the gas-pipe *f* and the valve A is arranged the insulating-coupling B, (shown best in Figs. 2 and 3,) which consists of three parts—viz., the socket-sleeve *g*, the clamping screw collar or nut *h*, and the insulating hollow tapered plug *i*. The plug *i*, as shown best in Fig. 3, is threaded on its interior with the regulation tapered "iron-pipe thread," and is screwed tightly on the tapering threaded end of the gas-pipe *f*, as shown in Figs. 1 and 3, and the exterior of the plug is turned to a smooth taper, and is socketed in the smooth conical socket in the mouth of the sleeve or union-nipple *g*, in which it fits gas-tight. The outer or wider end of the sleeve is threaded to receive the clamping nut or collar *h*, while the

inner or narrow end of the sleeve is threaded with a female thread to connect with the screw-neck of the valve A, as shown in Fig. 2. The plug *i*, as shown in Fig. 3, is of such a length as not to seat in the bottom of the socket in the sleeve *g*, so that the tapering sides of plug and sleeve only are in contact, and the wide end of the plug is formed with a projecting rim or shoulder, *j*, against which the rim or shoulder of the nut *h* fits, but makes no contact with the gas-pipe *f*, as shown in Figs. 2 and 3. It will hence be seen that by screwing up the nut the plug will be forced tightly into the conical socket of the sleeve *g* and compressed around the gas-pipe, thus rendering the connection of the fixture with the gas-pipe mechanically firm, and at the same time perfectly gas-tight, while the non-conducting nature of the plug renders the fixture perfectly insulated from the gas-pipe and ground, as is considered necessary in this class of fixtures. The plug *i* is preferably made from vulcanized or gelatinized fiber nicely turned and threaded; but it may of course be made from any other non-conducting material, preferably of one which is slightly elastic, as will be understood, and it may or may not be formed with a lip, *q*, at the narrow end, which will fit over the end of the gas-pipe, so as to prevent the possibility of that end coming in contact with the sleeve *g*, and it may or may not be formed with the outer rim, *j*. In case, however, the rim *j* is omitted, the shoulder of the nut *h* will seat against the end of the plug, and the plug will preferably be made thicker than that shown, as will be readily understood. It will now be appreciated that this form of coupling is not only simple, compact, and cheap, but is very strong, and renders the connection of the fixture on the pipe very secure, and also enables the fixture to be connected very quickly and easily, and without the necessity of turning the fixture, for it will be seen that in making the connection it is only necessary to first screw the plug *i* tightly on the pipe *f*, and then slip the nut *h* back over the plug, after which the sleeve *g* is screwed tightly onto the valve A, and the sleeve is then socketed on the plug with the bracket-arm in the proper upright position, after which the nut *h* is screwed tightly up on the sleeve, which clamps the parts firmly together, as will be readily understood from Figs. 2 and 3. These operations, as will be seen, are very simple, and do not require that the fixture itself be rotated to screw it to the gas-pipe, which is a great advantage in a combined fixture from which wires protrude for connection with the main conductors. This form of coupling may also be used in the case of chandeliers between the gas-pipe in the ceiling and the top of the stem of the chandelier; but I consider this form of coupling best adapted for wall-brackets, and I prefer to use in chandeliers the hollow cranked bend form of coupling shown in an application filed the same date with this, Serial No. 128,499.

Referring to Figs. 1, 2, 5, and 6, it will be seen that the valve A is formed with an enlarged seating-flange or base-rim, *k*, against which the neck of the escutcheon-shell or wall-plate *l* fits, so that the said wall-plate is arranged between the face of the wall and the said rim *k*, as will be understood from Figs. 1 and 2, and thus conceals the coupling and other connections of the fixture with the pipes and wires on the wall, and imparts a finished appearance to the base or root end of the fixture, as will be readily appreciated. This wall-plate is preferably bisected or made in two divisions, which meet in a rabbeted joint, and are held by screws, so that the wall-plate is thus easily applied from each side to the coupling end of the fixture after all the connections are made, as will be readily understood, which feature is fully shown and claimed in my other application filed coincident with this, and therefore forms no part of this application.

Referring now to Fig. 2, it will be seen that the neck and casing of the valve A is of course perforated with a gasway, *m*, which preferably passes through the neck in an eccentric position, or near the upper side thereof, as shown in Fig. 2, but of course in line with the aperture *m'* in the valve-plug *n*, as shown by full and dotted lines in Figs. 2 and 7. Now, besides the gasway *m*, the valve-casing is perforated with two wireways, *o o*, which, however, extend through the metal of the casing on each side of the plug in an inclined or oblique direction, as shown best in Figs. 5, 6, and 7, the forward ends of which open into the screw-socket *p* in the front end of the valve, into which the main tube *a* is screwed, while the rear end of the said wireways open behind the seating-rim, as fully shown in Figs. 2, 5, 6, and 7. Now, from the gasway of the valve-casing, within the screw-socket *p*, a small internal tube, *r*, proceeds and extends along within the outer or main tube, *a*, and bends into the bulb or fitting *b*, and there connects by both a screwed and soldered joint to a nipple, *b'*, on which the gas-burner *c* is screwed, as fully shown in Figs. 1 and 2, so that the inner tube, *r*, thus forms the gas tube or duct from the valve to the burner within the main tube *a*, to which no gas is admitted. The wires *t* are, however, passed in from behind the seating-rim *k* on the valve, through the bores *o o* into the main or outer tube, *a*, and between the said outer tube, *a*, and the inner gas-tube, *r*, and thence proceed through the eccentric space intervening between the inner and outer tubes to the orifice or socket *d*, where the wires issue to connect with the electric lamp, as shown best in Fig. 2; hence by this means both wires and gas pass through the valve by separate ducts, and separate tubes extend from the said ducts to the burners and lamps, thus forming independent passages for gas and wires in such a way as not to interfere with each other or allow the escape of gas, yet render the insertion of the wires very simple, and the construc-

tion of the fixture very neat and compact and finished in its external appearance.

It will be seen that the construction is rendered very neat and compact by having the gas and wire tubes placed one within the other, as shown, although I do not limit myself to this, as it is obvious that separate pipes might proceed from the gas and wire ways of the valve side by side, the gas-pipe proceeding, say, upward to connect with the burner, while the wire-pipe proceeded downward to connect with the lamp, and either arrangement of pipes may be used, according to the design of the fixture, as will be readily appreciated. Where the ends of the wires issue from the valve-casing behind the seating-flange *k*, they may be easily connected or coupled with the main circuit-wires protruding from or running along the wall, and after this connection is made the wall-plate *l* is placed over the parts to conceal the same, as will be readily understood, and it will be seen that by the constructions here illustrated this connection can be made very easily. It will also be seen that if it is ever desired to disconnect the fixture it can be accomplished very readily by disconnecting the wires between the valve and wall, and then loosening the nut *h* and removing the fixture, which will not in any way displace the wires in the fixture, nor interfere with the gas or wire passages, nor the lamps and burners thereon, which is a great advantage. It will therefore be now obvious from what has been already stated and illustrated that these improvements will not only apply to the arms of wall-brackets, but also to the arms of chandeliers, and will enable the arms to be readily connected to the gas-pipes and wires in the ring of the chandelier. In that case the seating-flange of the gas-valves A will seat up against the ring of the chandelier, and the necks of the valves will connect to the gas-pipes of the ring by any suitable coupling, while the wires *t t* will connect within the ring to the main wires, which proceed down the stem of the chandelier, as will be readily understood.

When the chandelier is to be packed for transportation, the arms can be readily detached, as described in the case of the wall-bracket, and packed compactly without liability of injuring the same, and can afterward be as easily attached when the chandelier is put up, which is an important advantage.

It will be readily understood that it is not essential that the casing or fitting *s* be provided with the valve-plug *n*, so as to form the gas-valve, as the valve-plug may be omitted and the gasway *m* continued through the solid casing to connect directly with the gas-pipe *r*, and a gas-valve of ordinary form may then be used between the nipple *b'* and the burner *c*, and it will be seen that the essential features of my invention will still be preserved.

When the valve A is used as shown in the drawings, one large bore, *o*, may pass through the casing on one side of the plug to convey the wires, instead of having a small bore or way on each side for each wire, which latter is, however, preferable, as illustrated.

It will be readily seen that instead of having the union-socket *g* connect with the screw-neck *u* of the fixture or valve A, and the insulating-sleeve *i* screw on the gas-pipe *f*, the arrangement may be reversed, if desired, without altering this feature of my invention. It will also be seen that the screw-neck *u* may be made either with a male or female thread, the male thread only being shown in the drawings, as that is considered preferable.

What I claim is—

1. In a combined gas and electric-light fixture, a bracket or chandelier arm terminated at its root end with a casing or fitting, *s*, perforated with ways for gas and wires, said fitting having an attaching-neck, *u*, for connection with the gas-pipe, within which the gasway opens, and with a seating flange or base, *k*, behind which the wire way or ways open, with distinct tubes extending from the front end of said ways to burner and lamp, substantially as herein set forth.

2. In a combined gas and electric fixture, a burner and lamp supporting arm terminated at its connecting end with a fitting having a connecting-neck, *u*, and base flange or shoulder *k*, said fitting being perforated with ways for gas and wires, opening, respectively, from said neck and behind said flange, with distinct pipes connected with the respective ways on the front end of said fitting, and arranged one within the other, and connecting, respectively, with gas-burner and electric lamp, substantially as herein set forth.

3. In a combined gas and electric fixture, a stop-cock or valve perforated with ways for gas and wires, with a distinct pipe proceeding from the respective ways to the gas-burner and electric lamp, substantially as herein set forth.

4. In a combined gas and electric fixture, the combination, with the arm which supports the electric lamp and gas-burner, of the stop-cock A, placed at the connecting end of said arm, and having its casing perforated with ways for the wires, with distinct ducts in the arm extending from the wire and gas ways, respectively, to the lamp and burner, substantially as set forth.

5. In a combined gas and electric-light fixture, a gas-valve perforated with a way or ways for wires, in combination with two tubes proceeding from the valve, one being connected with the gas-burner and the gasway of the valve, while the other is connected with the electric lamp and the wireway of the valve, and one of said tubes being inclosed within the other, substantially as herein set forth.

6. In a combined gas and electric fixture, the stop-cock A, perforated with ways for gas and wires, with the connecting-neck *u*, in which the gasway opens, and the seating rim or base *k*, behind which the wire way or ways open, substantially as herein shown and described.

7. In a combined gas and electric fixture,

the casing or fitting *s*, having at one end the connecting-neck *u* and base-rim *k*, and at the opposite end the tube-socket *p*, with distinct gas and wire ways passing through said fitting, and both opening at one end into said tube-socket, and opening at the opposite end, respectively, through said neck and rim, substantially as herein shown and described.

8. In a combined gas and electric-light fixture, a lamp and burner supporting arm formed in two tubes, *a r*, placed one within the other, the outer tube, *a*, being connected with the electric lamp, and adapted to convey the wires thereto, while the inner tube, *r*, is adapted to convey the gas, and opens through the side of the outer tube to connect with the gas-burner, substantially as herein shown and described.

9. In a combined gas and electric-light fixture, the connecting-fitting *s*, perforated with a central gasway, *m*, and a wireway, *o*, on each side of the gasway, substantially as and for the purpose set forth.

10. An insulating-coupling for combined gas and electric-light fixtures, for connecting the fixture with the gas-pipe and insulating it therefrom, consisting of an insulating plug or sleeve, *i*, adapted to screw onto the end of one part, in combination with a socket on the other part to fit over said plug, and a nut or clamp to secure the socket on the plug, substantially as herein set forth.

11. In combination with a combined gas and electric-light fixture, the internally-threaded and externally-tapering insulating sleeve or plug *i*, interposed between the gas-pipe and fixture, with the connecting neck or union *g*, having a tapering socket to fit over said plug, and a nut or clamp, *h*, to secure said socket on the said plug, substantially as herein shown and described.

12. The combination, with a combined gas and electric-light fixture, and with the gas-pipe *f*, of the union-socket *g*, nut *h*, and interposed tapering insulating-plug *i*, arranged and operating substantially as and for the purpose set forth.

SAML. B. H. VANCE.

Witnesses:
THOS. H. MCLEAN,
CHAS. M. HIGGINS.