(No Model.)

S. B. H. VANCE.

COMBINED GAS AND ELECTRIC LIGHT FIXTURE.

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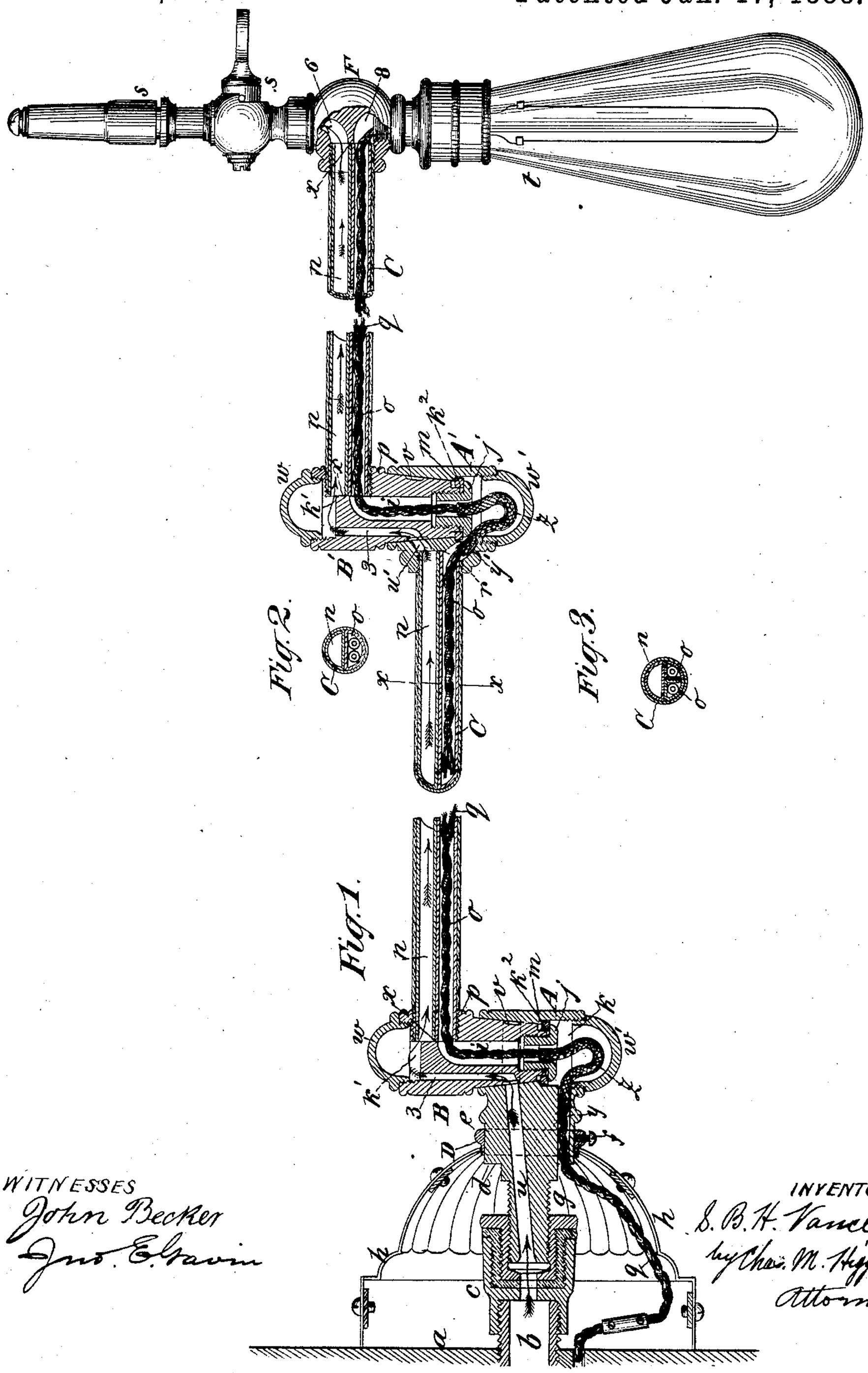

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COMBINED GAS AND ELECTRIC-LIGHT FIXTURE.

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To all whom it may concern:

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

My present invention applies more especially to swing-joint brackets—that is, brackets formed of two or more sections jointed to each other by the usual swing-joint, consisting of a ground conical plug turning in a ground conical socket; and my invention aims to provide an efficient and simple plan for conducting the wire and gas through independent passages in the swing-joints, and yet allow perfect freedom of motion to the joint, prevent injury to the wire, and yet keep the wire and gas-passages distinct. To these ends I make the plug of the swing-joint with a hollow or tubular center, up through which the wires are passed in a loop from the lower end of the socket, while the gas-passage is formed on the interior of the plug between the same and the socket. The tubes of the bracket have distinct passages for gas and wires, and connect to these plugs in such a way that their respective passages match with the corresponding passages in the plugs.

My invention, therefore, consists partly in the features above outlined, and also in the details of the swing-joints consisting in hollow screws and washers which retain the hollow plugs in the sockets at the open end where the wires are inserted; also, in removable caps, one of which covers the lower opening of the socket through which the wires are looped into the plug, and the other of which covers the top of the plug where the gas-passage is continued into the tubes of the bracket. I prefer to make the tubes or sections of the bracket on the principle shown in my former patent, No. 306,558—that is, with two semi-cylindrical tubes placed with their flat or diametrical sides in contact—thus forming two distinct parallel ducts for gas and wires within the space and form of one round tube; but in my present fixture I solder these half-tubes into a complete outer tube, which is screwed and soldered at the ends into the swing-joints. My invention, therefore, consists, mainly, in the several features above outlined, and in some minor details, as hereinafter fully set forth.

In the drawings annexed, Figure 1 presents a longitudinal section of my improved combined fixture, and Fig. 2 gives a cross-section of one of the tubular sections of the bracket on the line *x x*. Fig. 3 is a modification.

Referring to Fig. 1, *a* indicates the wall, and *b* the gas-nipple protruding therefrom to connect with the fixture, which has the usual threaded neck or nipple, *g*, on its root end, which is coupled with the gas-nipple *b* by the usual insulating-coupling, *c*. The swing-joints of the fixture are indicated by A A′ B B′, A A′ representing the sockets, and B B′ the plugs of the said joints, while the arms or tubes of the bracket are indicated by C C, which extend from joint to joint, as usual. The socket A at the root end of the fixture has an enlarged cylindrical neck or rim, *d*, between the screw-neck *g* and the socket A, all said parts A *d g* being formed in one integral casting, as shown in the drawings, and upon this neck is fitted a sliding or adjustable ring or collar, D, having a projecting bead, *e*, and a set-screw, *f*, by which latter it may be clamped at the desired position on the neck *d*.

h indicates a dome-shaped "wall-plate" or "canopy," made in bisected sections, the base of which fits against the wall, while the apex encircles the collar D, abutting against the bead *e*. This canopy thus conceals, as usual, the wire and gas-connections between the wall and the fixture, and secures a sightly finish at the root of the fixture, and it will be noted that while the projection of the fixture from the wall may vary somewhat in length, by reason of the screw-connection at the parts *b c g*, yet as the collar D has a fair range of adjustment on the neck *d* it may thus be always set up against the apex of the canopy *h*, so as to hold the same in firm position and prevent looseness of the parts or gaping openings, and thereby secures a perfect finish, the said adjustable collar D being thus a minor feature of my invention.

Now, referring to the sockets A A′, it will be noted that they are formed, as usual, with tapering or conical bores, to receive the tapering or conical spindles of the plugs B B′;

but this conical bore of the socket does not extend clear through, as usual, but terminates at or near the middle of the socket, and opens into an enlarged recess or chamber, *k*, in the bottom of the socket, with a seating-shoulder, *m*, between the conical bore and the recess *k*, as well shown in Fig. 1. Now, the conical plugs B B′, instead of being solid and protruding from the end of the socket, as usual, are tubular or have a central bore, *i*, and the plugs terminate within the sockets in the top of the recess *k*, and each plug has a hollow screw, *j*, which screws into the center of the plug and bears on a washer, k^2, which seats on the shoulder *m*, thus retaining the plug in proper position in the socket and permitting it to turn freely therein. Now, the tubes C C of the fixture contain distinct parallel ducts *n o* for gas and wires, said ducts being formed by semi-cylindrical or half tubes *n o*, fitting snugly within the outer tubes, C, as shown in Figs. 1 and 2. This compound tube C *n o* screws at one end into a screw-socket, *p*, in the head of the plug B or B′, as shown, the opposite end of the tube being screwed into the neck *r* of the socket A′, while the terminal end of the last tube screws into a fitting, F, on the top of which is fitted the gas-cock and burner *s*, while to the bottom is attached the electric lamp *t*. Now the root end of the fixture—that is the casting *g d* A—has an internal gas-passage, *u*, extending slightly diagonally upward and opening at about the middle of the socket A, coincident with an annular groove or gas-passage, *v*, around the plug, from which groove a continuing gas-duct, 3, rises through the plug and opens into a recess, *k′*, in the head of the plug, into which recess the screw-neck *p* also opens. Now one end of the compound tube C is screwed into the neck *p*, so that the central wireway, *i*, of the plug, which is turned laterally at the top, matches with the wireway *o* in the lower half of the compound tube C, while the gasway *n* in the upper half of the tube connects with the recess *k′*, and thus forms a continuation of the gas-passage from the nipples *b u*. The other end of the tube C screws into the neck *r* of the socket A′, where the gas-duct *n* matches with an upward passage, *u′*, which connects to the groove *v* and passage 3 of the plug B′, while the wire-duct *o* matches with a downward passage which opens into the lower recess of the socket A′. The front end of the terminal tube C screws into the neck of the fitting F, which has an upwardly-curved passage, 6, extending to the gas-cock and burner, which coincides with the gas-duct *n*, while a downwardly-curved passage, 8, extending to the electric lamp coincides with the wire-duct *o*. Now the compound tubes C are both screwed and soldered into their sockets in the plugs B B′, and fitting F being soldered gas-tight at the points or partitions *x* between the wire and gas ways, this soldering being easily done by blow-pipe and wire-solder inserted through the top of the recesses *k′*, thus rendering the gas and wire ways perfectly distinct and keeping one gas-tight from the other, so that no gas can come in contact with the wires. After thus soldering the tubes in place the recesses *k′* are covered by screw-caps *w*, screwed onto the top of the plugs with white lead to prevent escape of gas at said parts. The gas-passage is thus continuous from end to end of the fixture, as follows: Flowing from the nipple *b*, the gas enters the passage *u* and thence flows by the groove *v*, bore 3, and recess *k′* to the half-tube *n*, thence by passage *u′*, groove *v*, and bore 3 to second recess *k′* into second half-tube *n*, and thence by curved passage 6 to the cock and burner.

The course of the electric wires is as follows: Being first coupled with the wires extending from the wall within the canopy *h*, the fine flexible wires *q* of the fixture extend through a bore, *y*, in the outer part of the neck *d* into the bottom recess, *k*, of the socket A, and being bent upwardly in a loop therein pass centrally up through the bore *i* of the plug and turning laterally at the top thereof enter the lower half-tube, *o*. The wires thence pass down through the passage *y′* into the recess *k* of the socket A′, and being similarly looped therein pass up through the bore of the plug B and thence into the second half-tube *o*, and finally down the passage 8 in the fitting F to the electric lamp *t*. The bottom recesses, *k*, in the sockets A A′ are closed by deep-curved screw-caps *w′*, which cover the hollow end of the plugs and permit the looping of the wires therein and at the same time conceal the wires and thus impart a neat finish to the sockets. It may now be seen that this construction is not only very substantial and insures independence of the wire and gas ways, but it admits of the wires being easily threaded through the fixture when the caps *w′* are taken off and the plugs removed from the sockets. Furthermore, the wires pass through the swing-joints at the very center or axis of the plugs and are curved in a free easy loop at the base of the plugs, so that consequently perfect freedom of motion of the swing-joint is allowed and the wires are subjected to the least possible twist or strain in the movement of the joints. I prefer to cover the looped part of the wires in the base of the sockets with a piece of rubber tubing, *z*, to better protect the same from the possibility of any abrasion and to better sustain the wires, as will be readily appreciated.

I do not, of course, limit myself to the two half tubes *n o* in the tubes C of the bracket in connection with swing-joints having the novel construction shown, as any other suitable arrangement of gas and wire ducts in the tubes or arms of the fixture may be used with the novel swing-joints described. It will be noted, however, that the described construction of the tubular arms is very much to be preferred, as it not only provides perfectly distinct ducts for gas and wires, but it forms arms which possess unusual strength and rigidity, which

is very desirable, particularly in combined fixtures. I prefer to make the tubes of round or circular section; but of course they may be of angular or other forms, if preferred.

In some cases a separate tube may be used for positive and negative wires, thus making three segmental tubes for gas and wires collectively, all of which may abut snugly within the outer main tube, as shown in Fig. 3.

What I claim is—

1. In a combined electric and gas fixture, swing-joints having a tubular plug held within the sockets and adapted to receive the wires through the center thereof, with an external gas-groove on said plug and a lateral duct in the socket leading thereto, and an internal duct in the plug leading from said groove to the head of the plug, and ducts to convey wires and gas from the head of said plug, substantially as set forth.

2. In a combined fixture, the swing-joints having the sockets A or A′ with recess *k* and shoulder *m*, with the plugs B or B′, having central bore, *i*, and hollow screw *j*, holding the same in the shouldered recess of the socket, substantially as shown and described.

3. The combination, with the socket A or A′, having a lateral gas-passage, of the plugs B or B′, having gas-passage on its ground or seating face continued to the head of the plug, and a central wire-passage, *i*, with two distinct tubes or ducts connected to the top of said plug coincident with the respective gas and wire passages, substantially as shown and described.

4. In a swing-joint for combined fixtures, the combination, with socket A or A′, of the tubular plugs B or B′, having a central bore, *i*, turned laterally in the head of the plug, with a circumferential gas-groove, *v*, vertical gas-passage 3, recess *k′*, removable cap *w*, and socket *p*, into which said gas and wire passages open independently, substantially as shown and described.

5. In a swing-joint for combined fixtures, a socket having a wireway extending laterally into the open base thereof, and a gasway opening laterally into the ground seat thereof, with a tubular plug having a gas-passage on its ground exterior extended vertically through the body of the plug to the head thereof, and a central wire-passage opening from the base of the plug extending into the head thereof, from which head both gas and wire passages issue independently, substantially as set forth.

6. In a swing-joint for combined fixtures, the sockets A A′, having lateral gas and wire passages *u y* and recesses *k′*, and caps *w′* over said recesses, in combination with the tubular plugs B B′, washers k^2, and hollow screws *j j*, holding said plugs in said shouldered recesses, substantially as shown and described.

7. In a combined fixture, swing-joints having plugs with a recessed head, removable caps *w* on said recessed head, a gas-passage leading from said recess through the plug *via* the ground seat of plug and socket, a wireway extending up through the center of the plug, a neck or socket, *p*, on the head of said plug, into which both wire and gas ways open separately, and a double-ducted tube connected to said neck and soldered or sealed gas-tight therein at the septum between said wire and gas ways, substantially as shown and described.

8. In a combined swing-joint fixture, sockets having a lateral gasway *via* the ground seat and a lateral wireway into the open base of the socket, with a plug having an internal gas-passage *via* the ground-seat, and a central wireway with wires passed in a U-loop from the lateral passage of the socket up into the bore of the plug, with both gas and wire ways continued laterally from head of plug, and gas and wire ducts extending parallel in arms of fixture from said head.

9. In combination with the sockets A A′ and plugs B B′, having internal gas-passages *via* the ground seat, and a central passage for the wires, the compound tube extending from the head of said plugs and consisting of the outer tube, C, with two internal half-tubes, *n o*, connecting independently to the gas and wire ways in the said head, substantially as shown and described.

10. In a combined gas and electric fixture, a compound conducting and sustaining tube for gas and wires, consisting of an outer inclosing-tube with two or more distinct half or segmental tubes fitted snugly within the same, abutting together and forming independent ducts for gas and wires.

11. In a combined gas and electric fixture, a compound conducting and supporting tube consisting of an outer round or cylindrical tube, C, in combination with two half-round or semi-cylindrical tubes, *n o*, abutting diametrically together within said outer tube and forming distinct ducts for gas and wires, substantially as shown and described.

12. In a lighting fixture, the combination, with a neck, *d*, on the root end of the fixture and a wall plate or canopy, of an adjustable ring or collar mounted on said neck and abutting against said canopy, substantially as and for the purpose set forth.

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Witnesses:
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