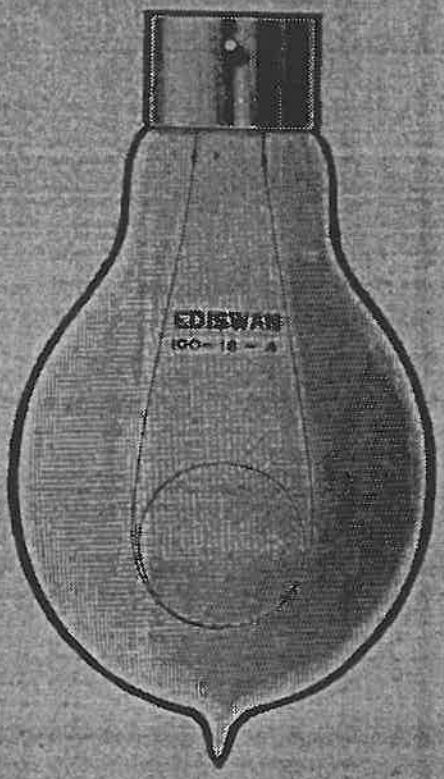


SEC. I.

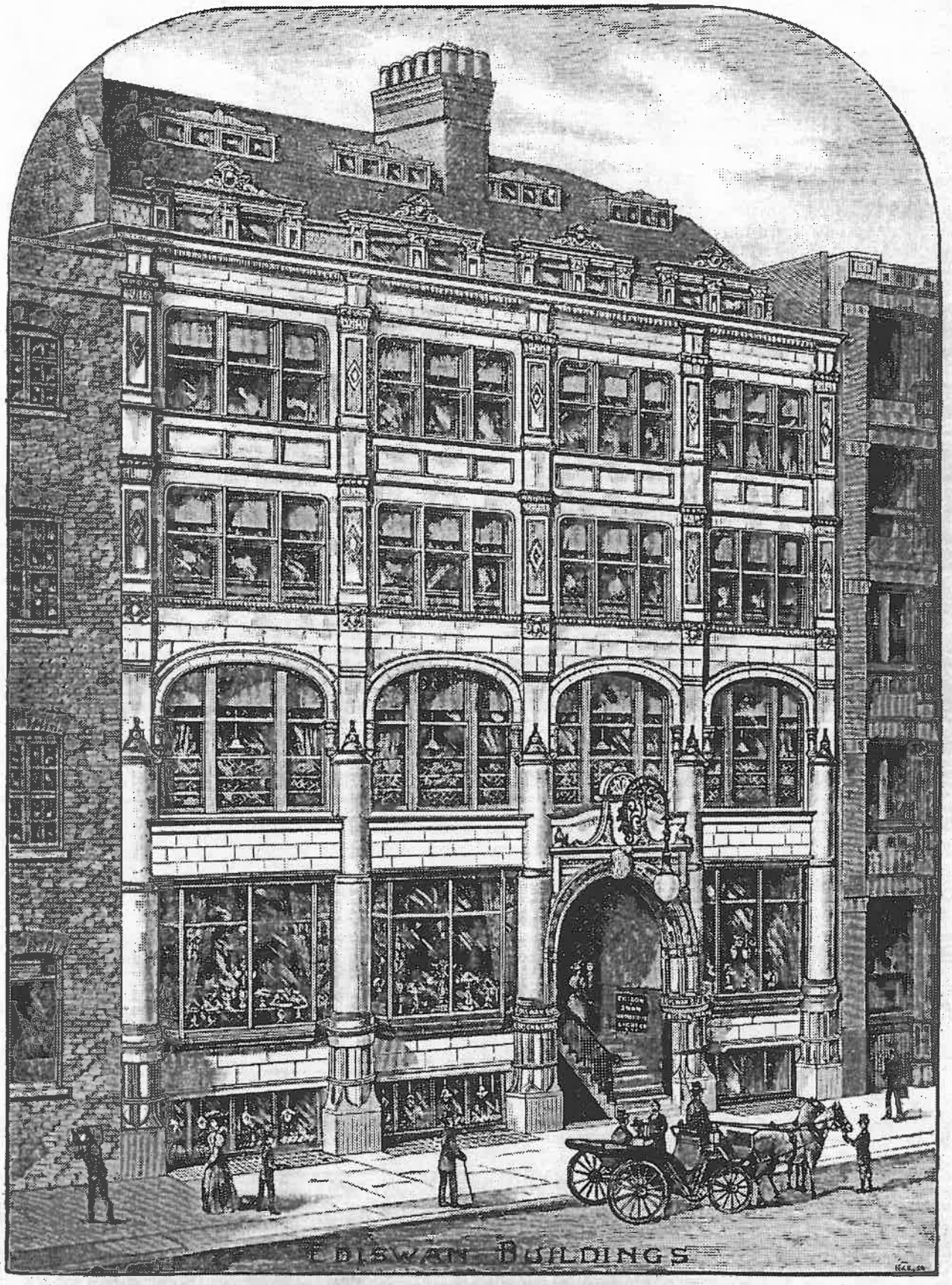
LAMPS.

"EDISWAN"

The Edison & Swan

United Electric Light Company, Limited.

August, 1896.



EDISWAN BUILDINGS, 36 & 37, QUEEN STREET, LONDON, E.C.

CORRECTIONS.

Cover —For Sec. 1, read Sec. 1 and 2.

Page 2—Third line, read Brazil. Delete last line.

„ 8—Terminals of Lamps. For page 5, read page 24.

„ 24—Figure 2, Central Contact Terminals. For see Fig. 5, read Fig. 2.

„ 42—Add 1 C.P. Limit of Voltage, 2 to 12. Price, 1/9.

„ 67—Crinkled Lamps, 3rd line. For Nos. 500 to 516, read Figs. 69 to 72.

„ 72—The Nos. 95 and 96 should be transposed, and read

Thus: 95. 8 and 16 C.P. 80 to 105 Voltage. 3/3.

96. 8 „ 50 „ 9/–.

„ 83—Third line from bottom. For No. 590, read Lamp Fig. 115.

„ 95—For Price 5/–, read price on application.

„ 97—The price of Dark Ruby Lamp should read 10/– per Lamp—not extra.

„ 98—The extra price of Lamps Silvered should read from 1/6 extra.

„ 105—Last line. For price 5/3, read price 6/–.

The Edison & Swan United Electric Light Company Limited.

INCANDESCENT LAMPS.

PRICE LIST.

(Subject to Alteration without Notice).

LONDON:—

HEAD OFFICE, WAREHOUSE AND SHOW ROOMS:—

EDISWAN BUILDINGS, 36 & 37, QUEEN STREET, E.C.

WEST END OFFICE, WAREHOUSE AND SHOW ROOMS:—

53, PARLIAMENT STREET, WESTMINSTER, S.W.

AND BRANCHES.

August, 1896.

McCORQUODALE & CO., LTD., THE ARMOURY, LONDON, S.E.

FOREIGN AGENCIES.

BOUSTED BROS., Colombo, Ceylon.

THOMAS COOK & SON (EGYPT), LIMITED, Boulac, Cairo.

RICARDO CREAGH, São Paulo, Brésil, Sud.

GEORGE FINDLAY & CO., Cape Town.

JOHN FORMAN, Montreal.

NEW AUSTRALIAN ELECTRIC COMPANY, LIMITED, Melbourne.

ORIENTAL TELEPHONE AND ELECTRIC COMPANY, Calcutta.

THEODORE REUNERT, M.I.M.E., A.M.I.C.E., Kimberley.

REUNERT & LENZ, Johannesburg.

STOKVIS & YONEN, Rotterdam, Hamburg.

PREFACE.

THE EDISON & SWAN UNITED ELECTRIC LIGHT COMPANY, LIMITED, was formed in 1883 for the purpose of working, in the United Kingdom, the Electric Lighting and Electric Lamp Patents and Inventions of MR. THOMAS ALVA EDISON and MR. JOSEPH WILSON SWAN. During the life of the Patents, the Company held the sole monopoly of the manufacture of Incandescent Electric Lamps in the United Kingdom, and, after protracted litigation, successfully upheld their Patent Rights. The Company have organised and equipped a very large Factory at Ponder's End, Middlesex, with the most elaborate machinery and appliances for producing Electric Incandescent Lamps and Fittings of all descriptions, of the highest quality and efficiency, and the experience gained by the Company during the period covered by the Patents, has enabled them to establish their business on a basis which still retains for the "EDISWAN" Lamp its unique position as the best Lamp in the market.

THE EDISON AND SWAN UNITED ELECTRIC LIGHT COMPANY, LIMITED, keep at their Works at Ponder's End, Middlesex, a very large stock of Electric Incandescent Lamps of various Voltages and Candle-powers, and Orders can in nearly all cases be executed directly from Stock, thus greatly facilitating expedition in delivery.

When Orders arrive for Lamps which are not already in stock, every effort is made to give an early delivery.

Large stocks of Lamps are also kept at the Central Warehouses, Ediswan Buildings, 36 and 37, Queen Street, London, E.C.; at the West End Depôt, 53, Parliament Street, Westminster, S.W.; and at the various Provincial Depôts—for full addresses see page 3.

Orders for any special varieties of Lamps are received and executed with promptitude.

INDEX.

INDEX—*continued.*

INDEX—*continued.*

INDEX—*continued.*

PARTICULARS.

ORDERS and STOCK.

INCANDESCENT LAMPS of all kinds are kept in stock unmounted, and are fitted with caps on receipt of Orders. Customers should, in ordering, specify exactly the kind of Lamps required, giving particulars of the

Voltage or Electromotive Force (E.M.F.)

Candle-power. (C.P.)

Description of Terminal. (See page 24.)

Also whether the Lamps are required clear glass, frosted, colored, cut glass, opal or any special description of Lamp, and at the same time state whether the Lamps are required for **SERIES WORKING** or **PARALLEL WORKING,** and any other special details of requirements.

Customers are recommended when selecting Lamps to adopt, if possible, the Standard Voltages and Candle-powers within the range stated in this Catalogue. When ordering Lamps it is advisable to quote the Figure Number, and then follow with Special Instructions concerning Voltage, Candle-power, Bulbs, Terminals, etc.

PACKING.

PACKING Cases are charged to the customer at cost price, and no allowance can be made for Empties returned except in the case of Suspender Packing Cases used for "Sunlight" Lamps, which will be allowed for in full if returned in good condition, within one month, Carriage Paid.

Packing.
——
Claims for Defective Lamps.
——
Returned Lamps and Empties.

PACKING—*continued.*

The following prices are charged for packing Lamps up to the 32 C.P. size:—

	s.	d.
Boxes to hold 1 to 4 Lamps	0	3
" " 5 to 12 "	0	6
" " 13 to 24 "	0	9
" " 25 to 55 "	1	3
Boxes or Casks to hold 56 to 120 Lamps ...	1	6
" " " 121 to 210 " ...	2	0
Casks to hold 211 to 350 Lamps	3	3
" " 351 to 500 "	4	3

CLAIMS FOR DEFECTIVE LAMPS.

CUSTOMERS should examine their Lamps immediately on arrival. **No Claim can be entertained for Lamps alleged to have been received Defective unless such Claim be made within one week of delivery.**

To prevent breakage in unpacking Lamps, the end of the cask bearing the address card should be carefully raised, but on no account forced in.

RETURNED LAMPS AND EMPTIES.

LAMPS which may appear to have failed owing to a defect in manufacture, should be returned to the Company, "Carriage Paid," when they will be examined, and if found to have failed from any defects in manufacture, their full value will be credited to the Customer.

An Advice Note, stating the reasons for returning the Lamps, should be sent with them, otherwise they may be broken up without being traced to the sender.

When Lamps, Stems, Empties, or other goods are, for any reason, returned to the Company, Customers are specially requested to write, giving full particulars of the Goods returned and the reason for returning them.

SPECIAL LAMPS.

ORDERS are received for any description of Incandescent Lamps of practicable patterns, and Lamps for any specific purpose are designed if the requirements of the customer are made known. The prices will vary according to the pattern desired and the quantity ordered.

The illustrations in the following pages represent Lamps which have been already supplied.

Particulars of the voltage, candle-powers and prices are given with the Lamps in the same paragraph, and may be traced by means of the number which is placed under each illustration.

Customers in choosing any of the following Lamps should adopt, if possible, the voltage and candle-powers given for the particular Lamps they choose, as these are found by experience to be the most suitable for the special form of Lamp.

When ordering Lamps, with the help of the illustrations and descriptions, care should be taken to first quote the numbers of the

Special Lamps.

Platinum Stems of Used-up Lamps.

Overrunning and Blackening of Lamps.

Lamps, and then follow with instructions concerning voltage, candle-power, terminals, whether the bulb is to be clear, coloured, silvered, or obscured, &c.

When Lamps are required half obscured, or half silvered, it should be stated if from terminal end or sealing point, or if they are required to be half obscured or half silvered lengthwise, viz.:—from terminal end to sealing point.

Orders for Lamps to be varnished should state "Varnished," and when Coloured Glass Bulbs are required, it should be stated thus:—"Coloured Glass."

PLATINUM STEMS OF USED-UP LAMPS.

CUSTOMERS can practically reduce the cost of their Lamps by saving and returning the Lamp Ends containing Platinum. The weight of Platinum contained in any consignment of Ends can be estimated, notwithstanding the fact that the Platinum is generally covered with glass, and often has brass caps attached by solder and plaster to it, and an allowance will be made for the Platinum at a rate depending upon the current market price of Platinum.

Suitable Bags to hold small quantities of Ends will be supplied free on application.

OVERRUNNING AND BLACKENING OF LAMPS.

WHEN Lamps blacken or fail after having only been in use for a short time, customers, not unnaturally, put the blame on the Lamps. When such failure or blackening occurs a test should

OVERRUNNING AND BLACKENING OF LAMPS—*continued.*

be made of the pressure of the current supplied, and an examination of the Lamps which have failed. In the great majority of cases it has been found that where there has been an abnormal breakage of Lamps it has been due to some irregularity of pressure in the supply of the current. The most common cause of the undue failure of Lamps is undoubtedly "Overrunning," due to over-pressure of the current supplied.

It is of great importance that those using Electric Incandescent Lamps should provide themselves with "Voltmeters," to enable them to check the pressure of the current, and such "Voltmeters" should be calibrated or checked from time to time, so that the correctness of the instrument may be ascertained.

When the light is unsteady—at one time abnormally bright, and at another time abnormally dull—such fluctuation, which is sometimes considerable, is due to a variation in the pressure of the current. If this variation occurs to the extent of four, five or six volts, the life of the Lamp is imperilled; and if it reaches, as it sometimes does, a variation of ten volts or more, the life of the Lamp will be of short duration.

It is especially important that Customers should select Lamps of the same Voltage as that of the Circuit upon which they are to run, and the Voltage of the Circuit should be ascertained by careful measurement. Lamps marked 100 Volts are not intended to be worked on a Circuit of 102 Volts.

The Marking of Lamps.

THE MARKING OF LAMPS.

INCANDESCENT ELECTRIC LAMPS are marked and classified for use depending on their

(I.) **VOLTAGE** or Electromotive Force measured in Volts (E.M.F.)

(II.) **CURRENT** measured in Ampères.

(III.) **CANDLE-POWER** (C.P.)

(IV.) **WATTAGE** or Power used measured in Watts.

N.B.—746 Watts=One Electrical Horse-Power, commonly written One E.H.P.

Every Incandescent Lamp requires a certain Electric pressure to be applied to its Terminals to cause it to give out light, and this Electrical pressure is measured in units called VOLTS. Lamps are distinguished by the VOLTAGE or number of Volts required to bring them to proper incandescence, and this marked pressure is called the Maker's, or MARKED VOLTS.

In the next place, the Lamps when so supplied with the proper pressure or Volts, take a certain amount of Electric Current and give a certain degree of Candle-power. Electric Currents are measured in a unit called an AMPÈRE. An Ampère is defined by the Board of Trade as an Electric Current which will, if employed in Electro-plating silver, deposit in one hour 4·025 grams of silver, or about one-seventh part of an ounce.

The illuminating power of a Lamp is defined in CANDLE-POWER. The Candle-power of an Incandescent Lamp varies somewhat in different

directions, but for practical purposes is generally taken in a horizontal direction when the Lamp is held upright, and with the filament so placed as to be all visible from the point of view at which it is regarded.

The power taken by a Lamp is measured in WATTS, and a Watt is defined as the power conveyed by a current of one Ampère when flowing through a Circuit under a pressure of one Volt. The Wattage of a Lamp is the power it takes to bring it to the marked Candle-power expressed in Watts. If one thousand Watts is supplied for a period of one hour, the amount of energy delivered is called one Board of Trade Unit, and is generally sold by the Electric Supply Companies at prices varying from 3d. to 8d.

If a sixteen Candle-power (C.P.) Electric Lamp is constructed to work at a pressure of 100 Volts, then such a Lamp may take a current of half an Ampère, and will, under these conditions, absorb a power of 50 Watts. Hence, in twenty hours, this Lamp will take one Board of Trade Unit of energy.

In order to distinguish Lamps and enable a user to determine at once the Current, Candle-power, and Volts proper for each Lamp, every Lamp is marked with *four distinguishing marks consisting of three groups of numbers and, in general, a letter.* The letter is one of four letters, either "**A**", "**B**", "**C**" or "**D.**"

The letter "**A**" stands for the words:—

Four Watts per Candle.

The letter "**B**" for the words:—

Three and a half Watts per Candle.

THE MARKING OF LAMPS—*continued.*

The letter "**C**" for the words—

Three Watts per Candle.

The letter "**D**" for the words:—

Two and a half Watts per Candle.

These Letters denote the Watts per Candle taken when the Lamp is new.

Every Lamp is marked with some mark, such as:—**100 16 A. ·6.**

The first figure, or group of figures (100), stands for the Voltage, or Electro-motive force or pressure at which the Lamp is to be used, and is called the MARKED VOLTS. The second figure, or group of figures, stands for the CANDLE-POWER—in this case 16. The letter, if present, denotes the rate at which power is consumed by the Lamp, or the WATTS PER CANDLE. The last figure denotes approximately the Current taken by the Lamp at the Marked Volts, in this case ·6 Ampère.

To determine the total power taken by the Lamp when run at the marked Volts:—

Look out in the table above the number of Watts per candle corresponding to the *letter* of the Lamp. If, for instance, the Lamp is marked:—**100 16 A. ·6.**

"A" stands for four Watts per Candle. Then multiply the number, viz. 4, by the second figure or group of figures, viz. 16, which denotes the Candle-power of the Lamp, and the product, in this case $4 \times 16 = 64$, is the total power in Watts taken by the Lamp when run at the marked Volts, viz., 100.

To determine the Current in Ampères taken by the Lamp:—

The last figure gives approximately the Current taken by the Lamp, and all Lamps with the same fourth figure take the same

Current, and will run in series with each other when worked in series groups.

Otherwise we may find the current thus:—Obtain the total Watts taken by the Lamp as above and divide this number by the first group of figures, or by the marked Volts of the Lamp. This gives the Ampère-current taken by the Lamp. In this case 64 divided by 100 gives $\frac{64}{100}$ = ·64 Ampères; hence, assuming the *letter* of the Lamp to be replaced by the proper value in Watts per Candle, we have the following rules:—

The first figure represents the Voltage of the Lamp.

The second figure gives the Candle-power of the Lamp.

The third figure gives the Watts per Candle-power of the Lamp.

The product of the second and third figures gives the Watts of the Lamp.

To determine the number of Lamps which can be worked per Electrical Horse Power:—

It must be remembered that 746 Watts are the equivalent of one electrical horse-power; hence, if we divide the number denoting the total Watts taken by the Lamp into 746, the quotient gives the number of Lamps per Electrical horse-power.

To determine the number of Board of Trade Units used by a Lamp in any time:—

One Board of Trade Unit (1 B.T.U.) is a Unit of Electrical Energy equal to that represented by 1,000 Watts used for an hour, or one Watt for 1,000 hours, and it is therefore otherwise called a Unit

THE MARKING OF LAMPS—*continued.*

of 1,000 Watt-hours; we have therefore to divide 1,000 by the total power in Watts taken by the Lamp, and the quotient given is the number of hours in which the Lamp uses 1 B.T.U. If a Lamp takes 50 Watts, then it is obvious that in 20 hours it uses $20 \times 50 = 1{,}000$ Watt-hours or one Board of Trade Unit (1 B.T.U.) Hence, since the B.T.U. is sold for prices varying from 3d. to 8d., the cost of running the Lamp per hour can be easily found. Suppose it was 5d. per Unit, then running the above Lamps continuously for 20 hours would cost 5d., or ¼d. per hour.

Suppose, for instance, that a lamp was marked:—**100 16 C,** this would indicate that it was a three Watt per Candle Lamp, since the letter "C" stands for 3, viz: three Watts per Candle, then $3 \times 16 = 48$, and the total Watts taken by the Lamp is therefore 48. The Current is therefore $\frac{48}{100} = .48$ Ampère. The Lamp consumes 48 Watt-hours per hour, or 1,000 Watt hours, or one Board of Trade Unit in 21 hours; and hence, if the B.T.U. cost 3d., this Lamp would then cost one-seventh part of a penny per hour to supply it with Electric Energy and to keep it alight.

As an assistance in calculating the Current taken by Lamps of various Candle-powers, taken at different Voltages, and at different Watts per Candle-power, a table is given on the following page.

Ampère Currents of Lamps at various Voltages, Candle-powers and Efficiencies.

TABLE SHOWING THE APPROXIMATE CURRENTS OF LAMPS AT VARIOUS VOLTAGES, CANDLE-POWERS AND EFFICIENCIES.

VOLTS.

Candle-power.	20	30	40	50	55	60	65	70	80	90	95	100	105	110	120
2·5 Watts per Candle.															
8	1·0	·67	·5	·4	·37	·33	·31	—	—	—	—	—	—	—	—
16	2·0	1·34	1·0	·8	·73	·67	·62	·57	·5	·44	·42	·4	·38	·36	·33
25	3·12	2·09	1·56	1·25	1·13	1·04	·96	·89	·78	·69	·66	·62	·59	·57	·52
32	4·0	2·66	2·0	1·6	1·45	1·33	1·23	1·14	1·0	·89	·84	·80	·76	·73	·67
50	6·24	4·18	3·12	2·5	2·27	2·08	1·94	1·78	1·56	1·38	1·31	1·25	1·18	1·13	1·04
3 Watts per Candle.															
8	1·2	·8	·6	·48	·44	·40	·37	—	—	—	—	—	—	—	—
16	2·4	1·6	1·2	·96	·87	·80	·74	·69	·60	·53	·50	·48	·46	·44	·40
25	3·74	2·5	1·87	1·5	1·36	1·25	1·15	1·07	·94	·83	·79	·75	·71	·68	·63
32	4·58	3·2	2·4	1·92	1·74	1·6	1·47	1·37	1·2	1·06	1·01	·96	·91	·87	·80
50	7·48	5·0	3·75	3·0	2·72	2·5	2·3	2·14	1·87	1·66	1·57	1·50	1·42	1·36	1·25

TABLE SHOWING THE APPROXIMATE CURRENTS OF LAMPS AT VARIOUS VOLTAGES, CANDLE-POWERS AND EFFICIENCIES.

Candle-power.	VOLTS. 20	30	40	50	55	60	65	70	80	90	95	100	105	110	120
	3·5 Watts per Candle.														
5	·87	·58	·44	·35	·32	·29	·27	—	—	—	—	—	—	—	—
8	1·4	·93	·7	·56	·51	·47	·43	·4	·35	·31	·30	·28	·27	·26	·23
16	2·8	1·87	1·4	1·12	1·02	·93	·86	·8	·7	·62	·59	·56	·53	·51	·47
25	4·36	2·92	2·19	1·75	1·59	1·45	1·34	1·25	1·09	·97	·92	·87	·83	·79	·73
32	5·6	3·74	2·8	2·24	2·04	1·86	1·72	1·59	1·39	1·24	1·17	1·12	1·06	1·01	·93
50	8·7	5·84	4·39	3·5	3·18	2·92	2·69	2·5	2·18	1·94	1·83	1·75	1·66	1·58	1·46
	4 Watts per Candle.														
2·5	·5	·33	·25	·2	·18	·17	·15	—	—	—	—	—	—	—	—
5	1·0	·67	·5	·4	·36	·33	·31	—	—	—	—	—	—	—	—
8	1·6	1·07	·8	·64	·58	·53	·5	·46	·4	·36	·34	·32	·31	·29	·27
16	3·2	2·14	1·6	1·28	1·16	1·06	·99	·91	·8	·71	·67	·64	·61	·58	·53
25	5·0	3·34	2·5	2·0	1·81	1·66	1·53	1·42	1·25	1·1	1·05	1·0	·95	·9	·83
32	6·4	4·26	3·2	2·56	2·32	2·13	1·97	1·82	1·6	1·42	1·34	1·28	1·22	1·16	1·06
50	10·0	6·65	5·0	4·0	3·64	3·33	3·08	2·83	2·5	2·22	2·1	2·0	1·9	1·81	1·66

THE EFFICIENCY OF LAMPS.

HIGH EFFICIENCY LAMPS.
LOW EFFICIENCY LAMPS or
LONG DURATION LAMPS.

IN the selection of Lamps for particular purposes, Customers will do well to weigh the following considerations.

An Incandescent Lamp consists of a Carbon Filament which is heated by the passage through it of the Electric Current, and the average duration of the Lamp depends upon the temperature to which the filament is heated, being less in proportion as the temperature is higher. The temperature of the Filament is determined by the WATTS PER CANDLE-POWER at which the Lamps are worked, and this is measured by dividing the number representing the power in Watts taken by the Lamp, by the Candle-power of the Lamp. The power taken up in the Lamp is, as already explained, measured in a unit called a WATT, such that 746 Watts make one electrical horse-power. The Watts taken in the Lamp are found by multiplying together the value of the Current passing through the Lamp, which is measured in AMPÈRES, and the value of the Electromotive Force or Pressure acting on the Lamp, which is measured in VOLTS. Thus for example—if a Lamp takes ·64 Ampère and 100 Volts to bring it to an Incandescence of 16 Candle-power, then the Watts taken in the Lamp are $\cdot 64 \times 100 = 64$, and the Watts per Candle-power are $\frac{64}{16} = 4$. On pages 19 and 20 of the Catalogue will be found a table giving the Currents in Ampères taken by Lamps of various Voltages and Candle-powers, when worked at 2½, 3, 3½ and 4 Watts per Candle-power.

By the efficiency of the Lamp is meant the light given out for a given expenditure of power in the Lamp. Hence the lower the Watts per Candle-power, the higher the efficiency at which the Lamp is said to work. Lamps used at 2½ Watts per Candle-power are said to work at a higher efficiency than Lamps at 4 Watts per Candle-power.

THE EFFICIENCY OF LAMPS—*continued.*

The iriciency of Lamps.

A Lamp worked at a high efficiency has its filament at a higher temperature than a Lamp worked at a low efficiency, and the filament LOOKS WHITER when the Lamp is at work.

On the other hand the average duration of the Lamp is less the higher the efficiency at which it works, and the less able is the Lamp to withstand changes of pressure well.

Hence Lamps are broadly classed into HIGH EFFICIENCY LAMPS, meaning Lamps marked to be worked at 2½ and 3 Watts per Candle; and LONGER DURATION LAMPS, meaning Lamps marked to be worked at 3½ or 4 Watts per Candle-power.

Each of these classes of Lamps have some particular advantage.

Suppose, for instance, Lamps are to be selected for use in a place where power is cheap, as, for instance, on board ship, at a water-power installation, or where coal is of low price. In this case it would be, on the whole, more economical to employ Low Efficiency Lamps, working at 3½ or 4 Watts per Candle and having a long duration or life.

If, however, Lamps are to be selected for a place where power is costly, then High Efficiency Lamps can be employed with advantage.

The High Efficiency Lamps are not so well able to withstand fluctuations of pressure in the direction of increase as the Low Efficiency Lamps. Hence for private installations where the question of power is not very important, and yet where the fluctuations of pressure may be great, the Low Efficiency Lamp is to be preferred. When, however, Lamps are employed in connection with Secondary Batteries and where the pressure is very steady, the High Efficiency Lamp will be found to be very economical.

DURATION OF LAMPS.

NO guarantee of duration of the Lamp is given by the Makers, as the conditions of its use may vary so greatly.

It should, however, be understood, that **provided the Lamp is used at its marked Voltage,** the average duration of the Lamp will depend upon the Watts per Candle at which it is worked, that is, upon the particular letter stamped upon the Lamp to indicate the class to which it belongs in regard to efficiency. Experience abundantly testifies that if Lamps are worked at the stated pressure and at a Wattage of 3½ or 4 Watts per Candle-power, the average life will be from 1,000 to 2,000 hours or more. Lamps marked A and B may, therefore, be expected, if carefully used, to have some average duration similar to this. If the Lamp is worked at a lower Watts per Candle (3 or 2½), it will have a higher efficiency, that is, it will give more light per Watt or per horse-power, but it will not, in general, have so prolonged a life. Customers should, therefore, understand that if used carefully at the marked Volts, Lamps marked A or B will be of longer average duration than Lamps marked C or D, but that these latter will, under the same conditions, absorb less power, that is, will be more economical of power. It is in the discretion of the customer, therefore, to select a Lamp of the suitable voltage for its work. Wherever power is cheap, then Lamps worked at 4 or 3½ Watts, that is, A or B Lamps, will be more suitable than Lamps marked C or D and *vice versa*. It must be understood that no correct deductions as to the life of Lamps can be made except as the result of experiments carefully carried out in a large number of Lamps and with very uniform pressure.

Every care is taken in the classification of the Lamps, but no guarantee can be given as to the effective duration of any single Lamp.

TERMINALS.

Incandescent Lamps are usually fitted with one or other of the Standard Terminals described below. Estimates will be given on application for any other variety of Special Terminals on sample being supplied.

The Standard forms of Terminals are as follows :—

Figure 1.—BRASS COLLAR TERMINAL, B.C.

This is the usual Standard Terminal, and is used with the Bayonet Joint Holder. It is an excellent attachment, and has a wider use than any other form of Terminal for general purposes. It is not, however, adapted for Lamps made with Bulbs of less size than No. 4. See page 32.

Contact is made by means of two small Brass Plates, shown in Fig. 1, page 28, leaving the collar insulated.

Figure 2.—CENTRAL CONTACT TERMINAL, C.C.

This Terminal is similar to the Brass Collar Terminal, with the exception that there is only one Brass Contact as shown in illustration, the collar itself forming the other Contact. See Fig. 5, page 28.

Figure 3.—EDISON SCREW TERMINAL, E.S.

This form of Terminal is very largely used and will be found very satisfactory, except in positions where it is subjected to continual vibrations. See Fig. 3, page 28.

Acorn Sockets suitable for Lamps mounted in this manner will be found described in the Fittings Section of the Catalogue.

TERMINALS—*continued.*

Figure 4.—BOTTOM LOOP CAP, B.L.C.

Adapted for use with Spring Holders, and principally used in places where the Lamp is subjected to vibrations. See illustration, page 34.

Figure 5.—LARGE THOMSON-HOUSTON CAP.

For use with Thomson-Houston Series Holders, and suitable for 6·8 and 10 Ampère Series Lamps.

Figure 6.—SMALL THOMSON-HOUSTON CAP.

Used with Holders similar to the Large Thomson-Houston Cap, and usually fitted upon Series Lamps taking less than 6·8 Ampères.

MINIATURE TERMINALS.

Figure 7.—SMALL BRASS COLLAR, Small B.C.

Figure 8.—SMALL CENTRAL CONTACT, Small C.C.

Figure 9.—SMALL EDISON SCREW, Small E.S.

These Terminals are very useful for most small Lamps, and can be used with safety up to the size of Lamp taking a No. 3 Bulb and a Current of under one Ampère.

They are generally used for Candle Lamps, illustrations of which are shown on page 37.

MINIATURE TERMINALS—*continued.*

Figure 10.—SMALL EDISON SCREW FLANGED, Small Flanged, E.S.

Customers sometimes wish to have No. 2 Bulb Lamps mounted with ordinary small E.S. Terminals. This has been found to be inadvisable as there is not sufficient room for the plaster to obtain a firm grip upon the Lamp. This Terminal has been introduced to overcome this, and can be used with No. 2 Bulb Lamps with safety.

SPECIAL TERMINALS.

Figure 11.—BRASS COLLAR VITRITE, B.C. Vitrite.

In this Terminal the Contact Plates are embedded in Vitrite instead of the ordinary plaster. It is especially useful for outdoor work, and where a moist atmosphere prevails.

Figure 12.—CENTRAL CONTACT VITRITE, C.C. Vitrite.

This Terminal is the same as the above, with the exception that there is only one Central Contact.

Figure 13.—SIDE CONTACT.

This Terminal consists of an Earthenware Cap, contact being made by the two projecting Loops.

Figure 14.—LARGE LUGS (For 150 C.P. Lamps and upwards).

Figure 15.—SMALL LUGS (For 100 C.P. Lamps).

ABBREVIATIONS.

B.C.	Brass Collar...	Fig. 1.
C.C.	Central Contact	Fig. 2.
E.S.	Edison Screw	Fig. 3.
B.L.C.	Bottom Loop Cap	Fig. 4.
Large T.H.	Large Thomson-Houston Cap ...	Fig. 5.
Small T.H....	Small Thomson-Houston Cap ...	Fig. 6.
Small B.C.	Small Brass Collar	Fig. 7.
Small C.C.	Small Central Contact	Fig. 8.
Small E.S.	Small Edison Screw	Fig. 9.
Small Flanged, E.S. ...	Small Edison Screw, Flanged ...	Fig. 10.
B.C. Vitrite.	Brass Collar Vitrite	Fig. 11.
C.C. Vitrite.	Central Contact Vitrite	Fig. 12.
S.C.	Side Contact	Fig. 13.
L.T.	Lug Terminal	Fig. 14.
L.C.	Lug Clips	Fig. 15.

ILLUSTRATIONS OF TERMINALS.

Illustrations of Terminals.

TERMINALS.

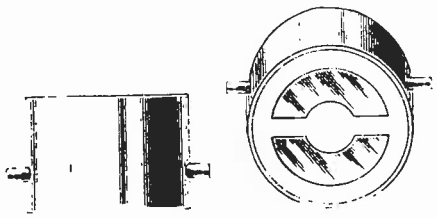


Fig. 1.

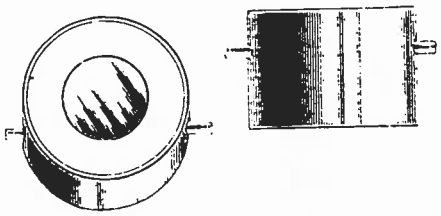


Fig. 2.

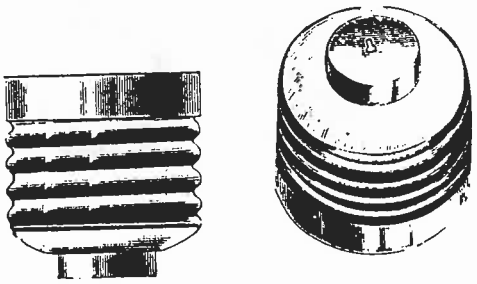


Fig. 3.

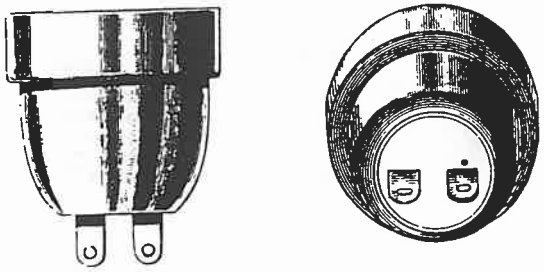


Fig. 4.

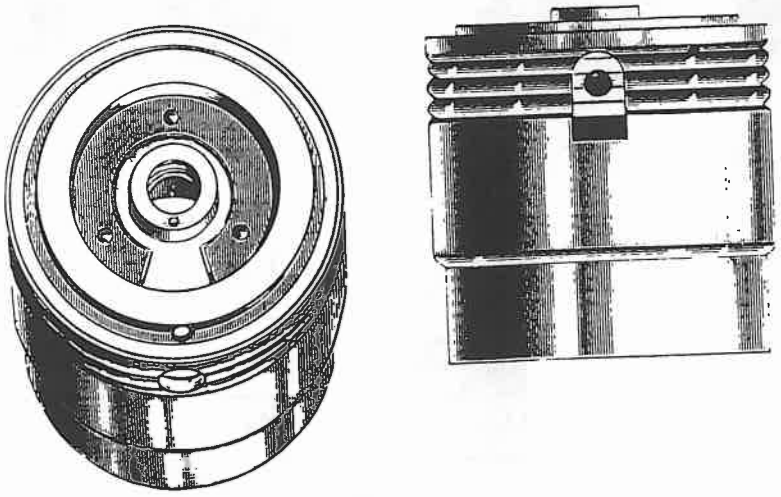


Fig. 5.

ILLUSTRATIONS OF TERMINALS.

TERMINALS.

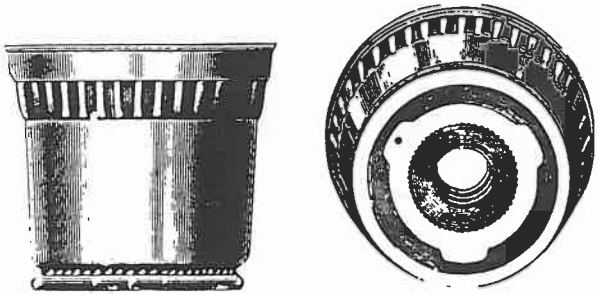


Fig. 6.

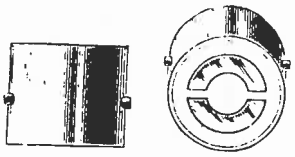


Fig. 7.

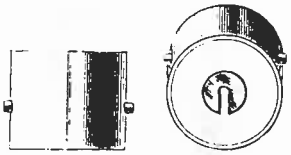


Fig. 8.

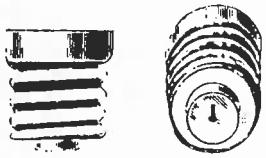


Fig. 9.

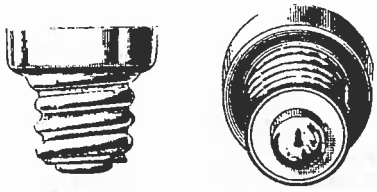


Fig. 10.

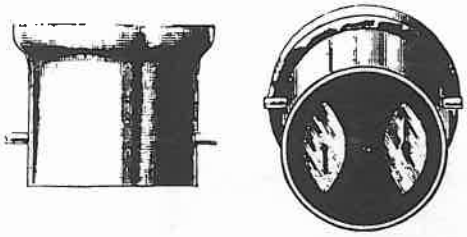


Fig. 11.

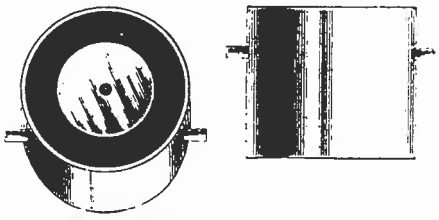


Fig. 12.

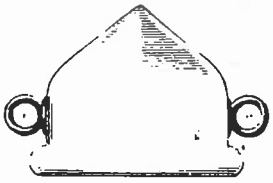


Fig. 13.

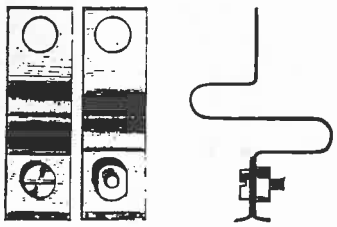


Fig. 14.

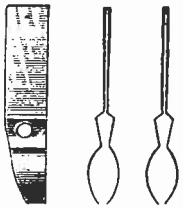


Fig. 15.

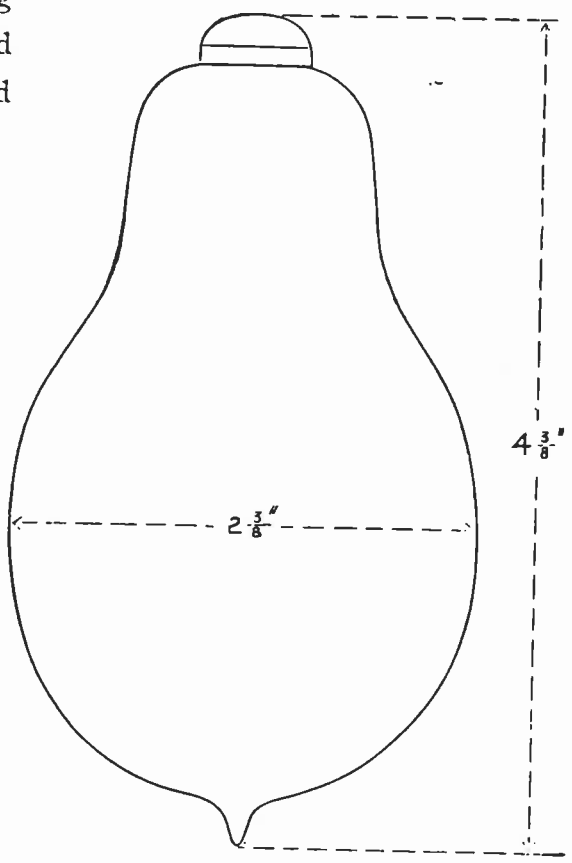
STANDARD BULBS.

BULB No. 1.

THE various classes of Lamps are made with glass bulbs of certain standard sizes. In order to enable customers to estimate the actual sizes of these various Bulbs full size illustrations are annexed. In giving orders customers should, if necessary, state the size and number of the Bulb.

The following is a table shewing the No. of the Bulb usually employed with Lamps of various Candle-power and Voltage at Standard efficiencies:—

Bulb No.	Candle-power.	Limits of Voltage.
1	16	115 to 120
	25	110 „ 120
	32	55 „ 120
2	5	70 „ 100
	8	41 „ 120
	16	41 „ 110
	25	45 „ 100
3	2½	36 „ 52
	5	21 „ 45
	8	15 „ 25
3a	5	50 „ 65
	8	26 „ 40
	16	30 „ 40
4	2½	9 „ 35
	5	10 „ 20
5	2½	5 „ 8
6	1	2 „ 12



Bulb No. 1.

Full size.

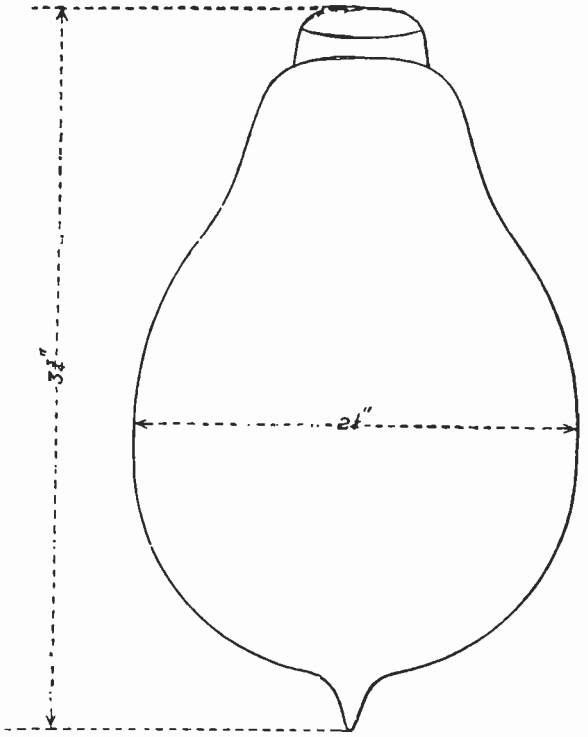
This Bulb is used for a few of the 25 and 32 C.P. Lamps.

BULB No. 2.

This is the ordinary Standard Bulb for 8 and 16 C.P. Lamps.

The following are the usual Lamps with which it is used :—

8 C.P., E.M.F. ... 100 to 110 Volts.
16 „ „ ... 100 to 110 „



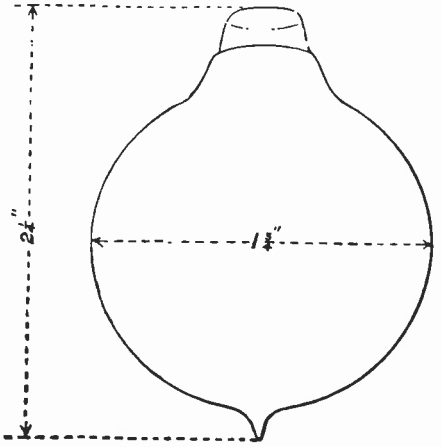
Bulb No. 2.
Full size.

BULB No. 3.

This is the Bulb used for Lamps of small Candle-power and low Voltage, for use with Accumulator Cells or small Dynamos.

The following are usual sizes of Lamps with which it is used :—

2½ Candle-power, E.M.F. ... 36 to 52 Volts.
5 „ „ „ ... 21 to 45 „
8 „ „ „ ... 15 to 25 „



Bulb No. 3.
Full size.

No. 3a.

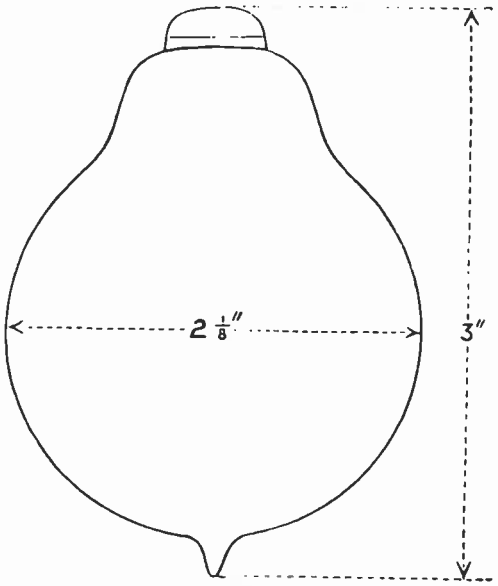
No. 4.

BULB No. 3a.

For some purposes a low Volt 8 or 16 Candle-power Lamp is required for working with a moderate number of Secondary Cells. The illustration shows a usual size of Bulb for these Lamps.

Usual Sizes of Lamps made with this Bulb are:—

5	Candle-power,	E.M.F. ...	50 to 65	Volts.
8	,,	,, ,, ...	26 to 40	,,
16	,,	,, ,, ...	30 to 40	,,

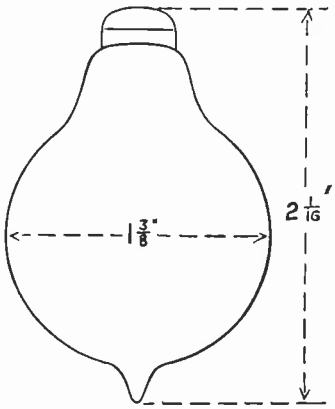


Bulb No. 3a.
Full size.

BULB No. 4.

This Bulb is employed for the following Lamps:—

2½	Candle-power,	E.M.F.	9 to 35	Volts.
5	,,	,,	10 to 20	,,

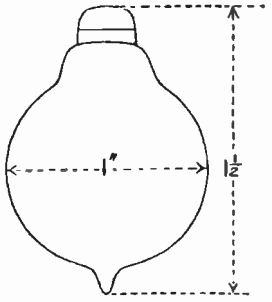


Bulb No. 4.
Full size.

BULB No. 5.

This Bulb is employed for:—

2½ Candle-power Lamps, E.M.F. 5 to 8 Volts.

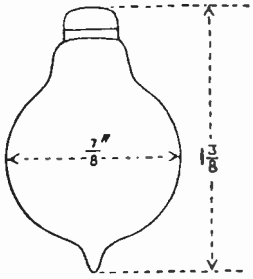


Bulb No. 5.
Full Size.

BULB No. 6.

This Bulb is employed for:—

One Candle-power Lamps, E.M.F. 2 to 12 Volts.



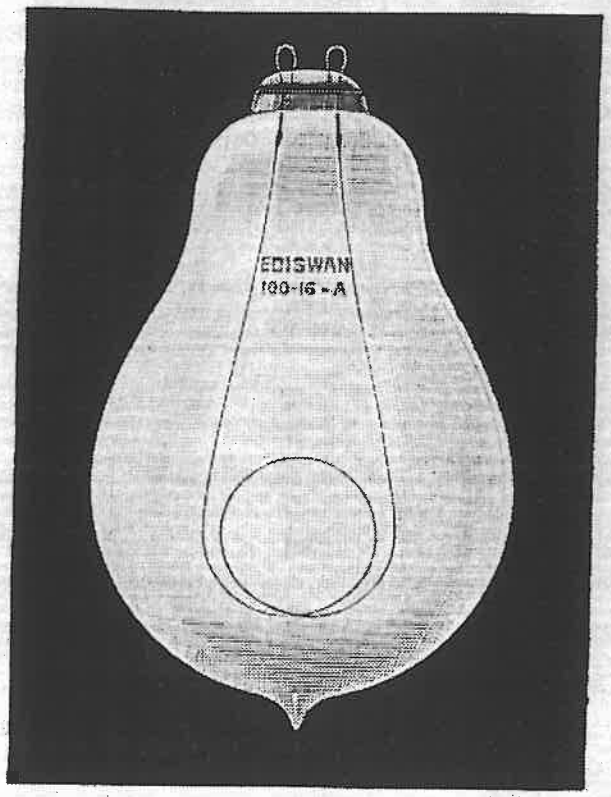
Bulb No. 6.
Full Size.

Section I.—BULBS AND TERMINALS OF LAMPS.

ILLUSTRATIONS OF LAMPS WITH VARIOUS BULBS AND TERMINALS.

The following Illustrations show various forms of standard Lamps with the kind of Terminal mostly employed.

BOTTOM LOOPS, "B.L."



Full size.

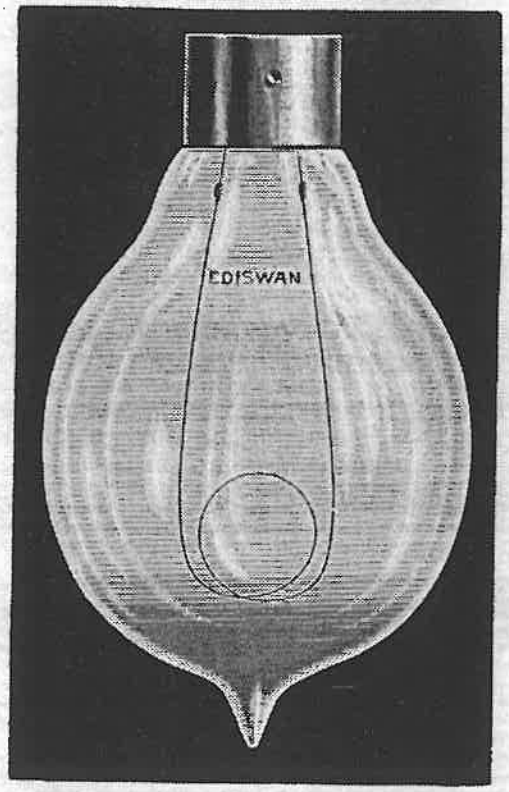
All Lamps made with Bulb No. 6 and upwards are stocked in the condition shown in illustration above, with the Platinum Wires formed into small eyes or loops at the bottom of the Lamp—these are termed Bottom Loop Lamps, or shortly, "B.L." Lamps.

The Loops of the 50 C.P. Lamps are twisted, and therefore stronger than single loops.

Lamps are all kept in stock in this condition; when Terminals of other kinds are ordered they are added as required.

For suitable Holders see Fittings Section of Catalogue.

BRASS COLLAR TERMINAL, "B.C."



Full size.

The most usual form of Terminal is the Brass Collar ("B.C.") Terminal.

This illustrates a No. 2 Bulb capped with a Brass Collar Terminal, suitable for Bayonet-joint Holders.

This is an excellent Terminal for all ordinary purposes, more of these being used than any other form.

It is not, however, adapted for Lamps made with Bulbs of a less size than Bulb No. 4.

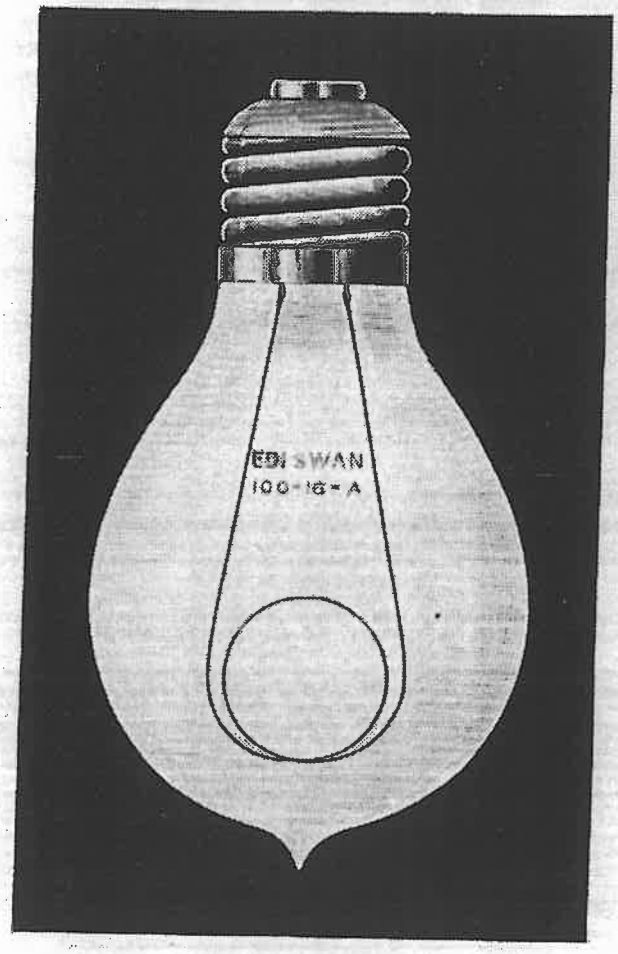
Contact is made by means of two little Brass Plates (not shown in the Fig.), leaving the Collar insulated.

The Central Contact Terminal is similar, but with only one Brass Plate, the Collar itself forming the other Contact.

For suitable Holders see Fittings Section of Catalogue.

EC. I.
Screw
rminal,
E.S."

SCREW TERMINAL, "E.S."



Full size.

In the above illustration a Lamp made with No. 2 Bulb is shown, fitted with the Edison Screw Terminal. This is frequently used, and will be found a most satisfactory Terminal.

It is not a form of Terminal, however, that should be used where there is constant vibration of the Holder.

Acorn Sockets, suitable for Lamps mounted in this manner, will be found described in the Fittings Section of this List.

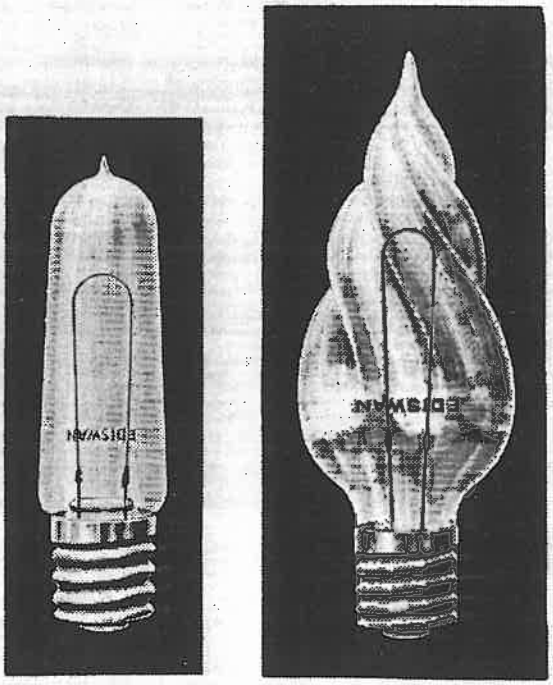
SMALL FLANGED SCREW TERMINAL, "SMALL FLANGED E.S."

This form of Miniature Terminal enables its use to be extended to the larger sized Bulbs, and it is strongly recommended that, whenever possible, the flanged form of small E.S. Terminal should be used in preference to the Terminal described in next paragraph.

SMALL SCREW TERMINAL, "SMALL E.S."

The illustrations show two forms of Candle Lamps mounted with the small E.S. Terminal; it is used in these cases without the flanges, in order that the whole Terminal may be hidden within the Holder.

Fittings suitable for receiving Lamps, mounted with this form of Terminal, are shown in Fittings Section.

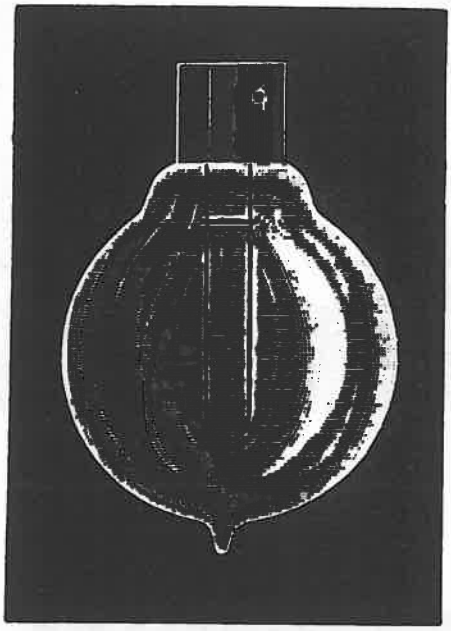


Full size.

SMALL CENTRAL CONTACT, "SMALL C.C."

This Terminal is similar to that shown in Fig. 2, page 28, with only one little bottom brass plate, the Collar itself forming the other Contact.

SMALL BRASS COLLAR, "SMALL B.C."



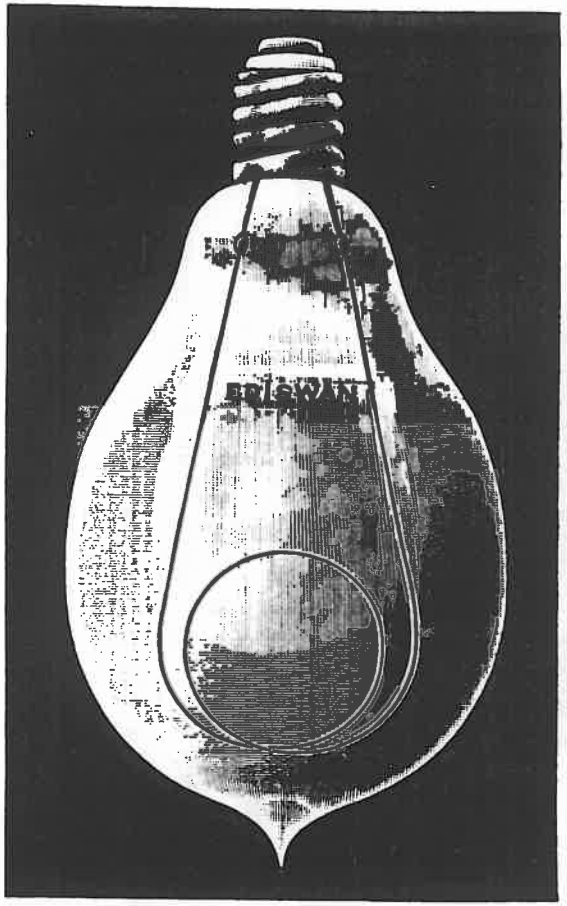
Full size.

This is a very useful Terminal of the miniature type for most small-sized Lamps, and can be used with safety up to the No. 3 Bulb, as illustrated.

It is very generally used for Candle Lamps, and wherever a secure but small Terminal is required.

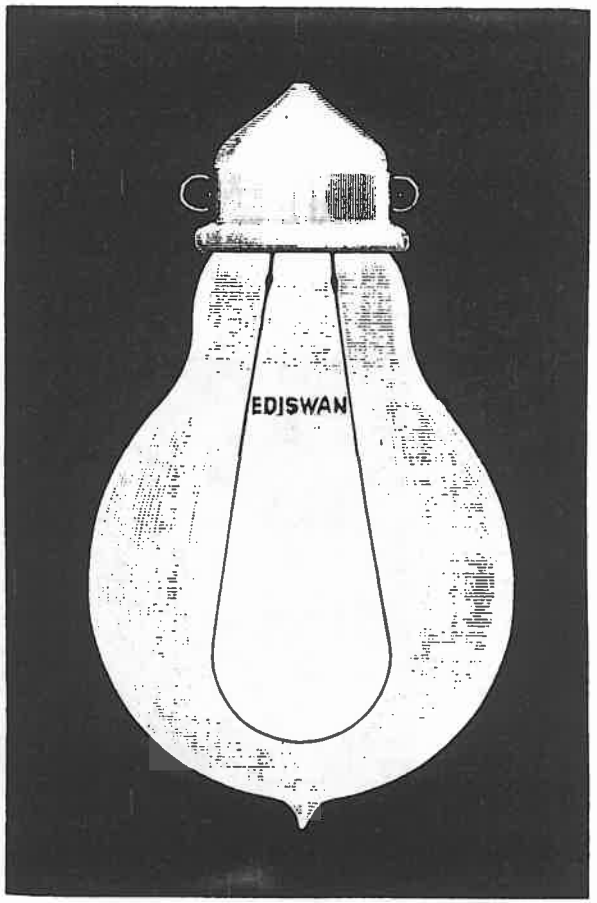
Holders and Candle Fittings suitable for Lamps mounted with this form of Terminal are shown in Fittings Section.

NEW FORM CENTRAL STATION LAMP, WITH SMALL SCREW TERMINAL.



Full size.

SIDE CONTACT TERMINAL, "S.C."



Full size.

The form of Terminal shown above consists of an Earthenware Cap, through the sides of which project two Loops, contact being made by the holders to them.

This style of Terminal is not very convenient, and should never be used unless for a special purpose.

SEC. 2.

Classes of Lamps.

Class I. Standard Lamps.

Section 2.—CLASSES OF LAMPS.

LAMPS are classified according to use into the following seven classes:—

STANDARD LAMPS	Class (I.)
HIGH VOLTAGE LAMPS	,, (II.)
SERIES LAMPS	,, (III.)
SUNLIGHT (HIGH CANDLE-POWER) LAMPS	,, (IV.)
FOCUS LAMPS	,, (V.)
SPECIAL LAMPS	,, (VI.)
EXTRA SPECIAL LAMPS	,, (VII.)

Section 2.—Class I.—STANDARD LAMPS.

THE STANDARD LAMPS comprise all the standard sizes of Incandescent Lamps as used for the illumination of houses, shops, theatres, public buildings, etc., whether lighted by isolated or private plant or from public Electric Supply Stations. These Lamps are all marked with figures and letters as explained above. Lamps of Voltages and Candle-powers, other than those described in this Section, can be supplied, but large stocks of these Standard Lamps (100 and 110 Volt Lamps) are kept on hand, and orders for them can be filled at once.

Standard Lamps can be fitted with every Terminal in general use, particulars of which will be found on pages 28 and 29, but the B.C. and

STANDARD LAMPS—*continued.*

E.S. Terminals shown upon the Lamps illustrated on pages 35 and 36 are most popular, and can be thoroughly recommended.

The following illustrations are full size. The dimensions of the Bulbs will be found on reference to Bulb Section, pages 30 to 33.

Lamps of high Voltage, where required to be run Horizontally, have Double Filaments; *see* pages 49 to 51.

The following is a Table of C.P., limits of E.M.F., and Bulbs used for the Lamps in this Section.

Lamps are manufactured outside these limits if required, but are not recommended.

Candle-power.	Limits of Voltage.	Bulb No.
2½	9 to 35 Volts.	4
	36 to 55 ,,	3
5	10 to 20 ,,	4
	21 to 45 ,,	3
	50 to 65 ,,	3a
	70 to 100 ,,	2
8	15 to 25 ,,	3
	26 to 40 ,,	3a
	41 to 120 ,,	2
16	30 to 40 ,,	3a
	41 to 110 ,,	2
	115 to 120 ,,	1
25	45 to 100 ,,	2
	110 to 120 ,,	1
32	55 to 120 ,,	1

STANDARD LAMPS—*continued.*

PRICES.

CANDLE-POWER.	LIMITS OF VOLTAGE.	PRICE.
		s. *d.*
2½	9 to 35 Volts.	1 9
2½	36 ,, 65 ,,	1 9
3	50 ,, 65 ,,	1 9
5	10 ,, 20 ,,	1 9
5	21 ,, 45 ,,	1 9
5	50 ,, 65 ,,	1 9
5	70 ,, 100 ,,	1 9
8	15 ,, 25 ,,	1 9
8	26 ,, 40 ,,	1 9
8	41 ,, 120 ,,	1 9
16	30 ,, 40 ,,	1 9
16	41 ,, 120 ,,	1 9
25	45 ,, 120 ,,	1 9
32	55 ,, 120 ,,	2 0
50	80 ,, 120 ,,	3 0
100	50 ,, 120 ,,	6 0

EXTRA CHARGES.

			s.	*d.*		
100 Volt	S.E.S.	1	0	extra.		
100 ,, ...	3 Bulb... ...	0	6	,,		
Fairy Lamps	Flat	1	0	,,	}	Loops at S.P. 3d. extra.
Flat Micros	... ...	1	0	,,		
Platinum supports to Filaments		0	6	,,		
Sealing Point of Ordinary Lamps at Side or in Collar		0	6	,,		
Half Silvering Ordinary No. 2 Bulb, from		1	6	,,		

LOW CANDLE-POWER HOUSE LAMPS.

For many purposes in the domestic use of Electric Lamps, it is quite unnecessary to use 8 and 16 Candle-power Lamps, smaller units of light, such as 3 and 5 Candle-power Lamps, are quite sufficient. Nevertheless, each Lamp is required to be independent, and to be worked off the 100 or 50 Volt service of the house. It is not sufficient in this case to employ low Volt Lamps in series, because then they are not independent. Lamps are, however, made suitable for 50, 100, or 110 Volt Circuits, and having an illuminating power of 3 to 6 Candle-power, which are especially suited for use in bedrooms, passages, kitchens, offices, and other parts of a house where a small unit of light is all that is required. These Lamps take a small amount of total power, and are adjusted to the same efficiency, viz:—3.5 or 4 Watts, as the normal Standard Lamp. Thus the 3 Candle-power 100 Volt Lamp takes about 12 Watts, and the 5 Candle-power 100 Volt Lamp absorbs 15 to 20 Watts.

Three of these 5 Candle-power Lamps properly placed in a room will give a more uniform and better diffused illumination than one 16 Candle-power Lamp, and at the same time, since each 5 Candle-power Lamp is on a separate Switch, a much greater economy in Current can be obtained.

Prices, Voltages and Candle-power of these Lamps are given in the table on preceding page.

These low Candle-power house Lamps are also specially suitable for railway carriage lighting, tram-car lighting and other similar purposes.

STANDARD LAMPS.

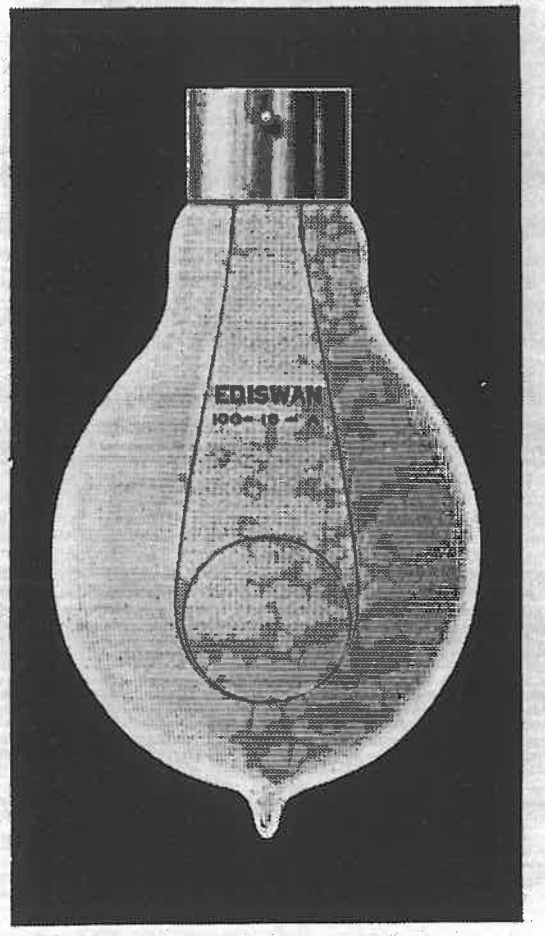


Fig. 30.

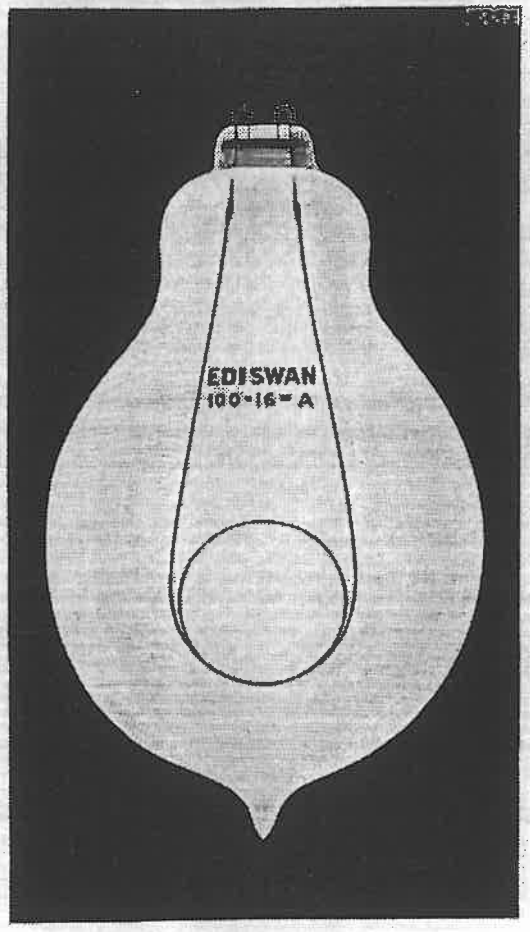


Fig. 31.

5	Candle-power,	70	to	100	Volts.
8	,,	41	,,	120	,,
16	,,	41	,,	120	,,
25	,,	45	,,	120	,,

STANDARD LAMPS.

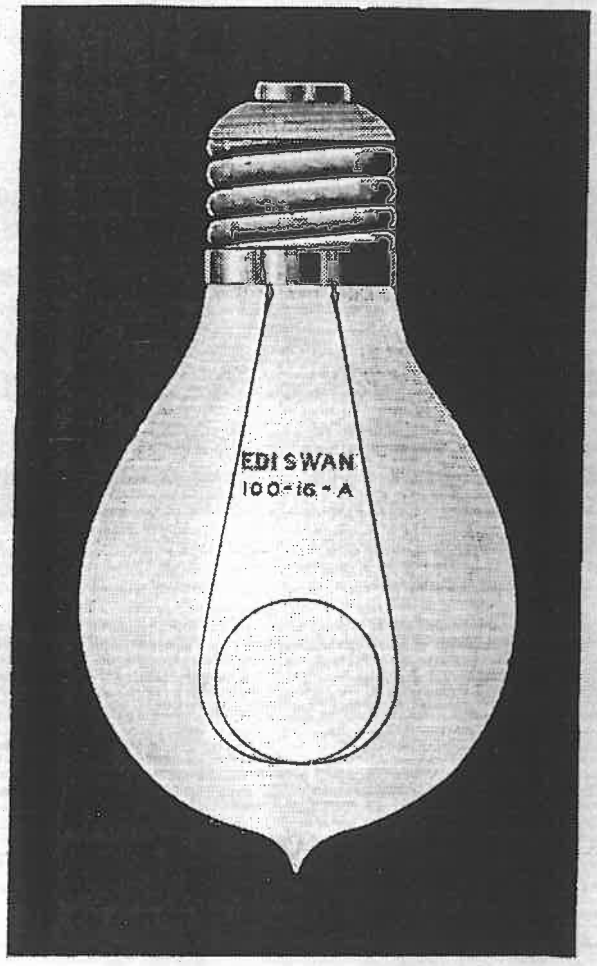


Fig. 32.

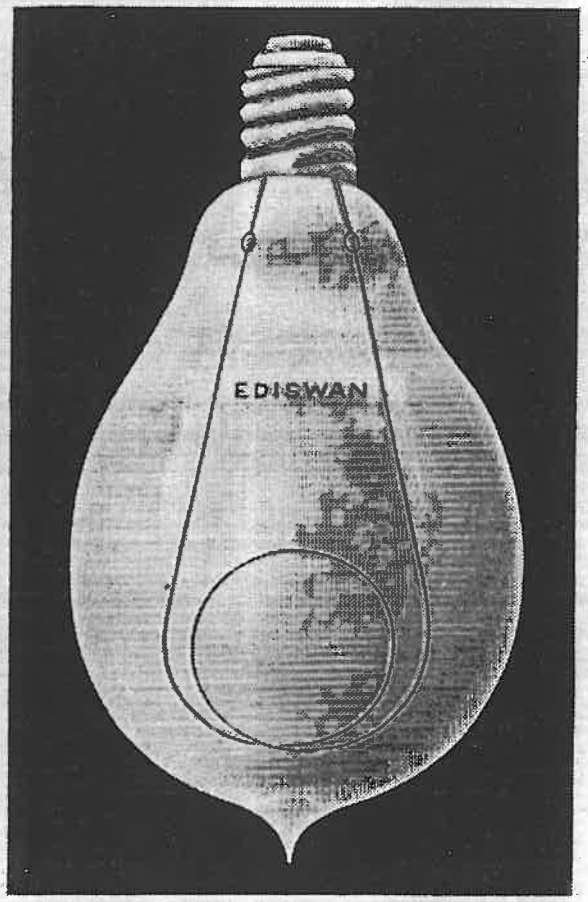


Fig. 33.

5	Candle-power	70 to 100	Volts.
8	„	41 „ 120	„
16	„	41 „ 120	„
25	„	45 „ 120	„

STANDARD LAMPS.

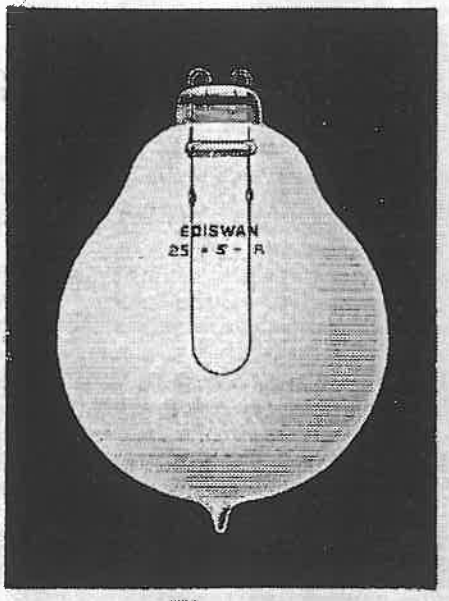


Fig. 34.

2½ Candle-power, 36 to 65 Volts.
5 „ 21 „ 45 „
8 „ 15 „ 25 „

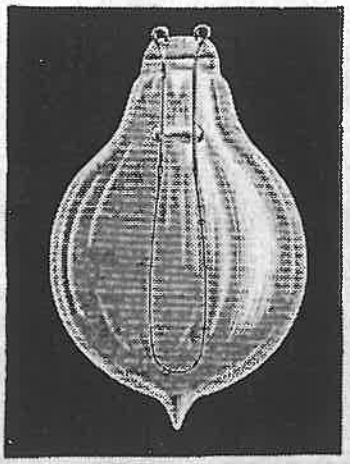


Fig. 35.

2½ Candle-power, 9 to 35 Volts.
5 „ 10 „ 20 „

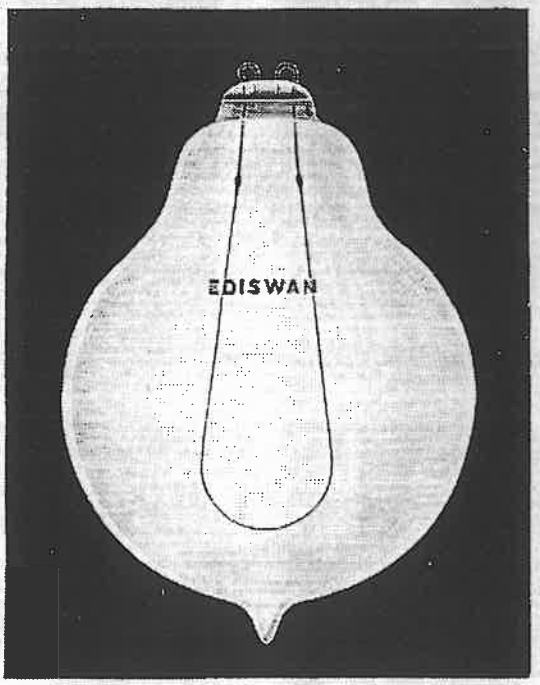


Fig. 36.

5 Candle-power, 50 to 65 Volts.
8 „ 26 „ 40 „
16 „ 30 „ 40 „

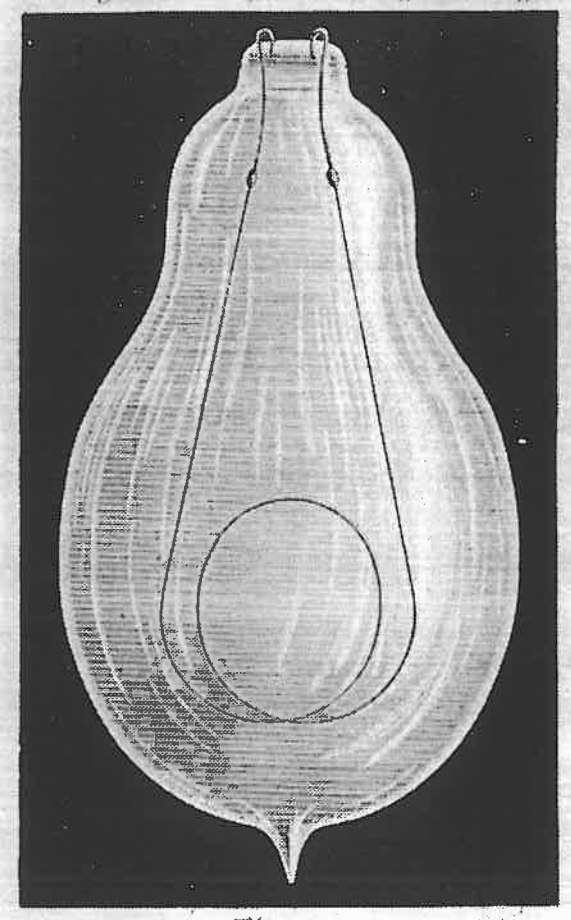


Fig. 37.

16 Candle-power, 115 to 120 Volts.
25 „ 110 „ 120 „
32 „ 55 „ 120 „

STANDARD LAMPS.—50 C.P. LAMPS.

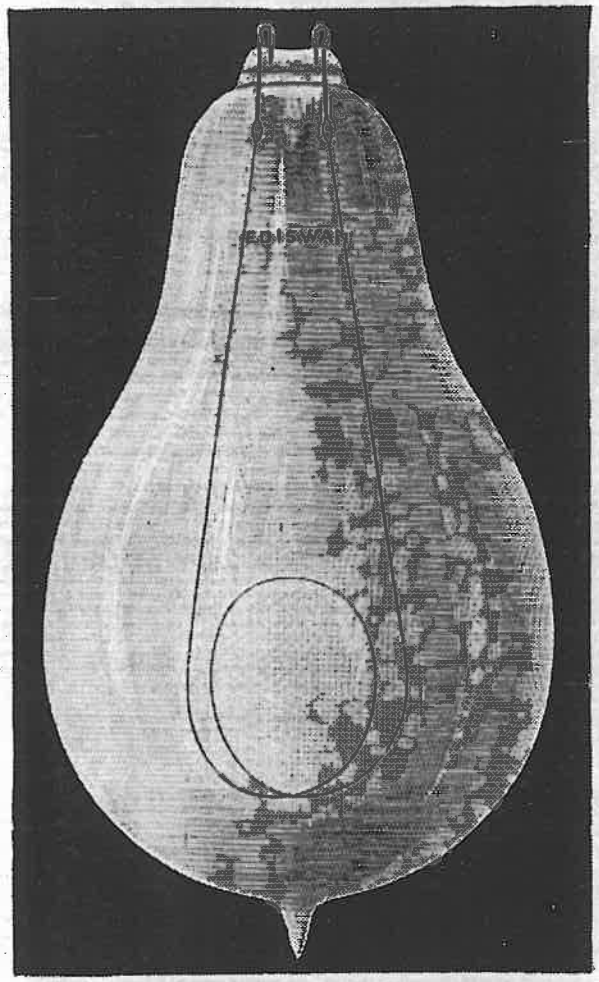


Fig. 38.

THESE Lamps are largely used for Shop, Theatre Lighting, &c.

The accompanying illustration represents a full size 100 Volt Lamp, 50 C.P. Lamp.

If smaller Lamps are required, they can be supplied with No. 1 Bulb, similar to illustration on page 30.

STANDARD LAMPS. 100 C.P. LAMPS.

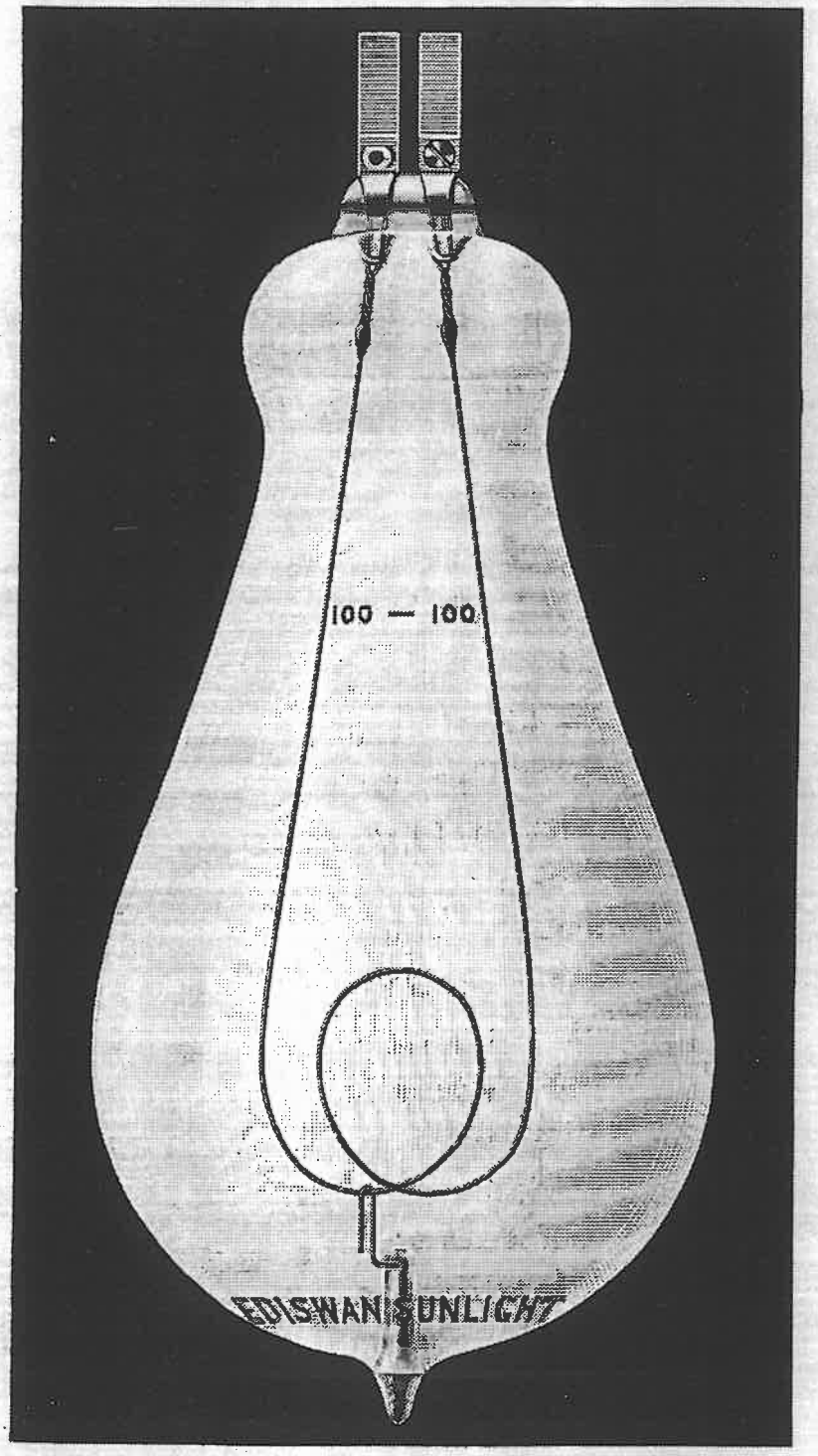


Fig. 39. 100 C.P. Lamp. Showing Lug Attachment.

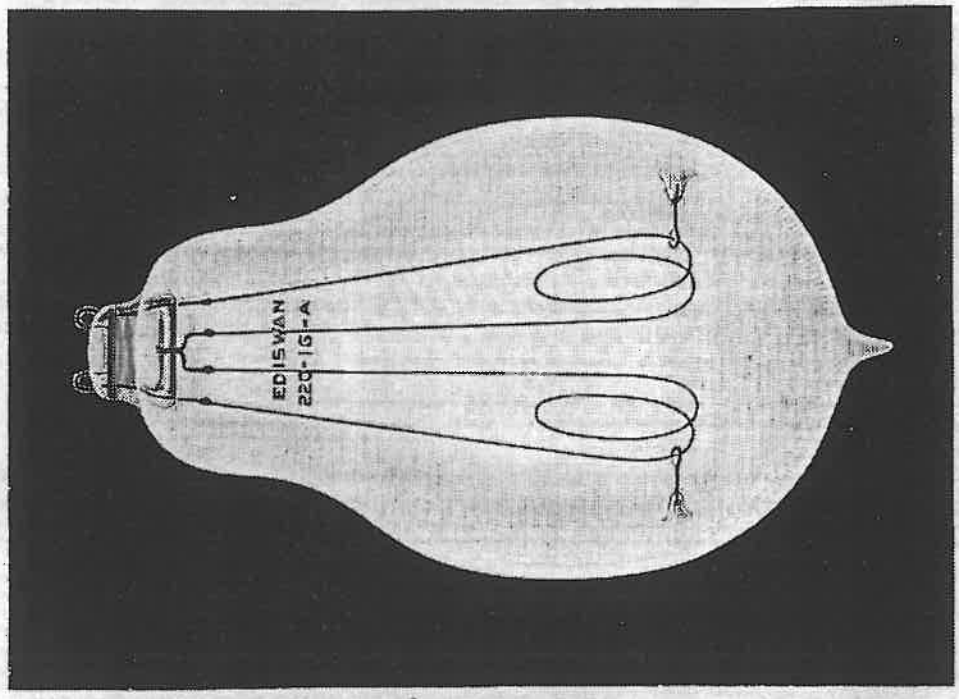
Section 2. Class II.—HIGH VOLTAGE LAMPS.

IN order to meet the demand for a High Voltage Lamp, viz.: one suitable for working on 150 to 250 Volt Circuits, a Lamp has been introduced which fulfils this requirement. These High Voltage Lamps are made in Voltages from 150 to 250, and Candle-powers of 8 to 50. They are adjusted to work at about the same efficiency, viz.: 3·5 or 4 Watts per Candle, as the normal Standard Lamps working at 100 Volts. These High Voltage Lamps will be found very suitable for working extensions of Three-wire system, and in other districts where economy in cost of Conductors is an important matter. They may also be used with advantage in Factory Lighting, when a very large area has to be covered. By this means a very considerable economy in Conductors can be effected without any sacrifice of efficiency. Thus for instance: if Incandescent Lamps have to be placed at a certain distance from the Generator, and a certain percentage loss, say 10%, is to be allowed in the Conductors, then if 200 Volt Lamps are used the Copper Conductors can have one quarter the sectional area of Copper that would be necessary if 100 Volt Lamps were used, and yet permit the percentage of energy wasted in the Conductors to remain the same. It will be found that the average duration of these Lamps is quite as great as that of the ordinary Standard Lamp.

Prices and Voltages of these Lamps are given in the table below:—

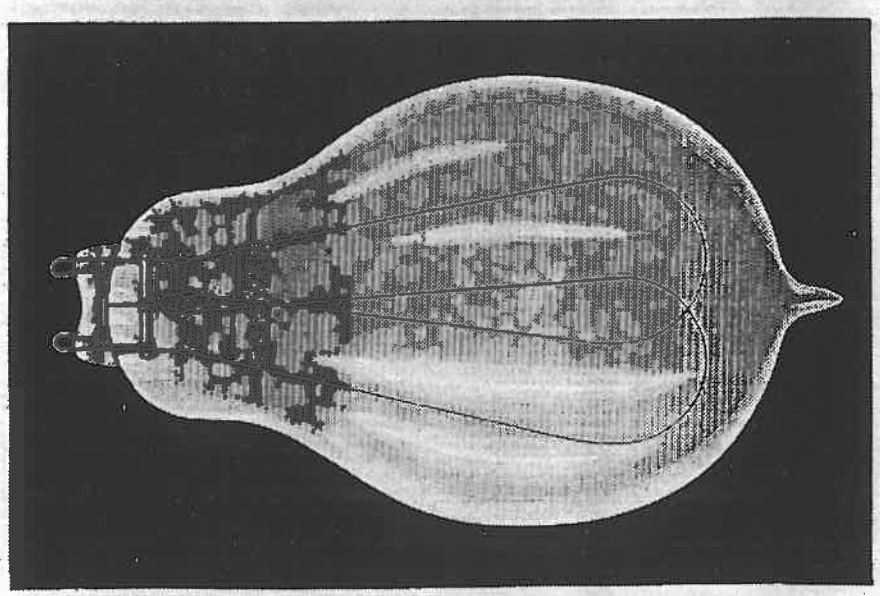
Candle-power.	Limits of Voltage.	Price.
		s. *d.*
8	150 to 160 Volts.	2 0
8	180 „ 230 „	2 0
16	150 „ 160 „	2 0
16	180 „ 230 „	2 0
32	150 „ 230 „	2 6
50	150 „ 230 „	3 9
100	150 „ 230 „	7 0

ILLUSTRATIONS OF HIGH VOLTAGE LAMPS.



220 Volt, 16 C.P. Lamp.

Fig. 41.



200 Volt, 16 C.P. Lamp.

Fig. 40.

HIGH VOLTAGE LAMPS.

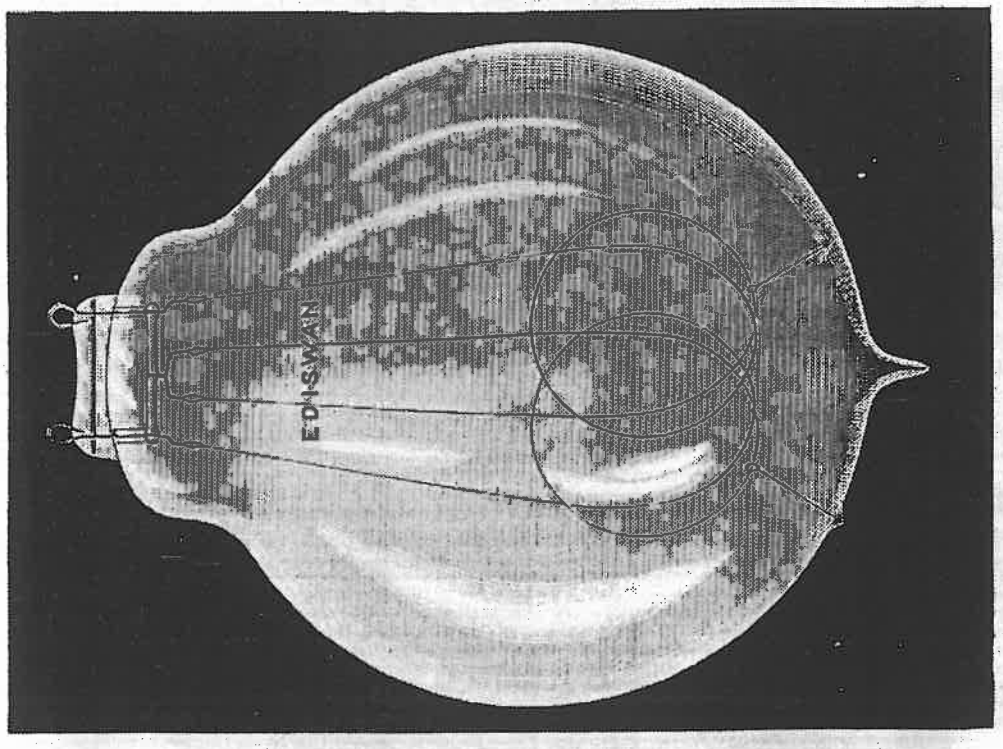


Fig. 43.

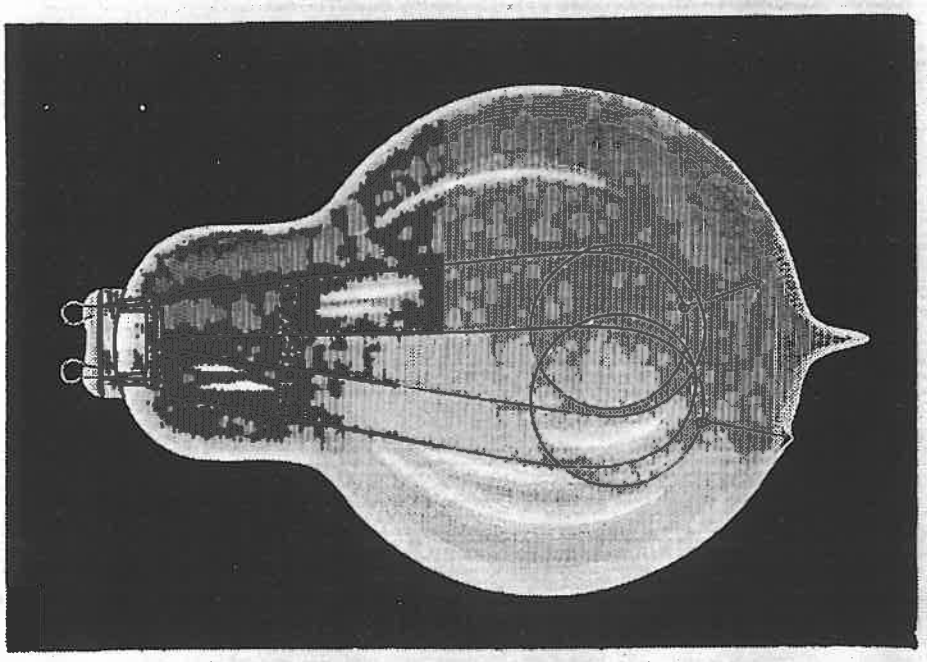


Fig. 42.

Section 2. Class III.—SERIES LAMPS.

THIS Class includes all Lamps intended for working in series either with one another or with Arc Lamps. These Lamps are made, therefore, to give the required Candle-power when taking exactly the same Current. They are marked with the Candle-power and with the Current and the name Series, thus:—

Series—10 Amp. 50 C.P.

In ordering these Lamps customers are requested to give the Current the Lamps will be required to take, and whether they are to run in series with Incandescent or Arc Lamps. In the latter case a special Socket is required (*see* Fittings Catalogue) to secure that the accidental breakage of a Lamp shall not open the Circuit, but that under all conditions the Circuit shall be closed.

PRICES.

Lamps taking 6 to 8 Ampères:—

	s.	d.
16 Candle-Power	6	6
32 „	7	0
50 „	8	0

Lamps taking 10 Ampères:—

16 Candle-Power	7	6
32 „	8	0
50 „	9	0

Special quotations will be furnished for others not mentioned.

SERIES LAMPS. Fig. 44.

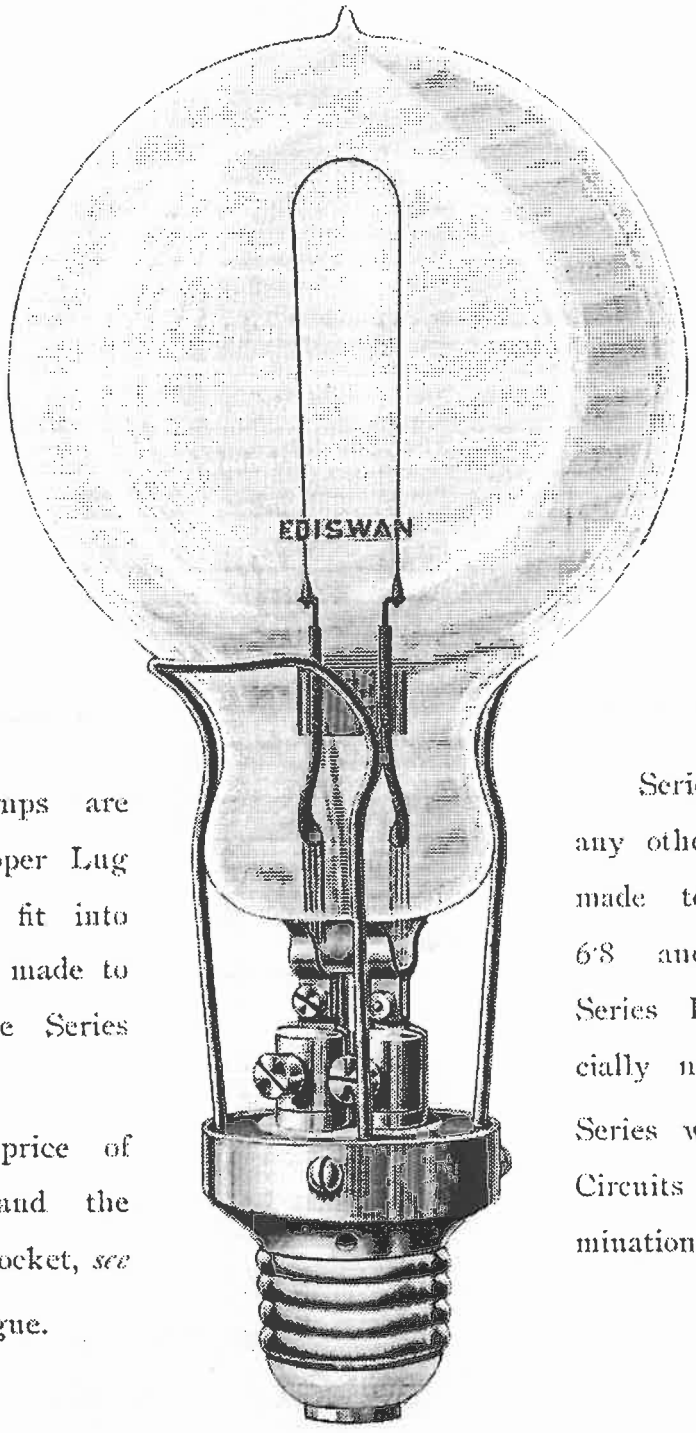
List of the Standard Sizes of Series Lamps:—

LAMPS TAKING 6·8 AMPÈRES.

16 C.P.

32 „

50 „



List of the Standard Sizes of Series Lamps:—

LAMPS TAKING 10 AMPÈRES.

16 C.P.

32 „

50 „

These Lamps are made with Copper Lug Terminals and fit into a Lug Adapter, made to Screw into the Series Holder.

For the price of the Adapter and the special Series Socket, *see* Fittings Catalogue.

Series Lamps for any other Currents are made to order. The 6·8 and 10 Ampère Series Lamps are specially made to run in Series with Arc Lamp Circuits for Street Illumination.

Fig. 44.
Series Lamp with Lug Terminals.

Section 2. Class IV.—SUNLIGHT LAMPS.

FOR external illumination—Ship Lighting, Cargo Lights, Decorations and many other purposes—Incandescent Lamps of high Candle-power are required.

Lamps of this description are now made from 150 to 2,000 Candle-power, and are called "Sunlight Lamps." These Lamps give a brilliant mellow light, very much to be preferred for some purposes—such as outside shop illumination—to Arc Lamps. They have the advantage over Arc Lamps of requiring no trimming, and, when the expense of Arc Lamps, Carbons and trimming labor is taken into account, they are not on the whole more expensive.

The high Candle-power Lamps are made in sizes of 150, 200, 300, 400, 500, 600, 800, 1,000, 1,500 and 2,000 C.P.

These Lamps are very suitable for interior lighting in Hotels, Restaurants, Theatres or other public buildings, in Workshops, Factories, &c., and for outdoor lighting of every description. They are specially useful on board ship for Cargo Lanterns, &c., for the lighting of Railway Stations, for Building operations, and in every situation where a powerful and steady light is required.

In proportion to their actual C.P. they are much more economical than groups of small Incandescent Lamps; for example: the 200 C.P. Lamp gives a light equal to from twelve to thirteen Lamps of 16 C.P., but costs rather less than the price of six 16 C.P. Lamps, and in addition to this, they are made to run at very much higher efficiencies.

SUNLIGHT LAMPS—*continued.*

The Lamps are fitted with strong Copper Lugs, attached to the Platinum Wires, and which can either be fitted direct into the New Lug Holder, or have Flexible Cord attached, for the convenience of those who have other Holders already installed. The New Lug Holder referred to is made with strong wire prongs which fit into the curved neck of the Lamps, which obviates entirely the use of netting. (See illustrations on following pages; also Fittings Section of Catalogue.)

PRICES:—

Candle-Power.	Limits of Voltage.	Price. s.	d.
150	50 to 120	7	0
200	50 to 120	10	0
300	50 to 120	12	0
400	50 to 120	15	0
500	65 to 120	17	6
600	65 to 120	20	0
800	80 to 120	25	0
1,000	80 to 120	30	0
1,200	100 to 110	32	6
1,500	100 to 110	35	0
2,000	100 to 110	40	0

150 and 200 C.P. "SUNLIGHT LAMPS."

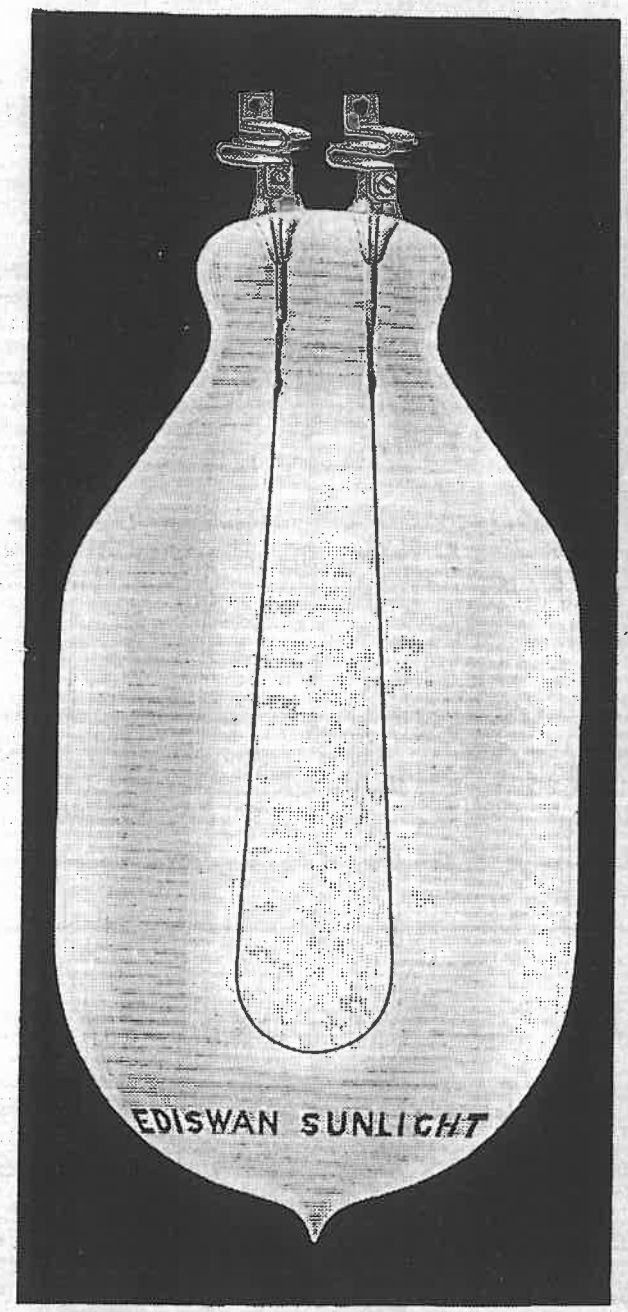


Fig. 45. *Half actual size.*

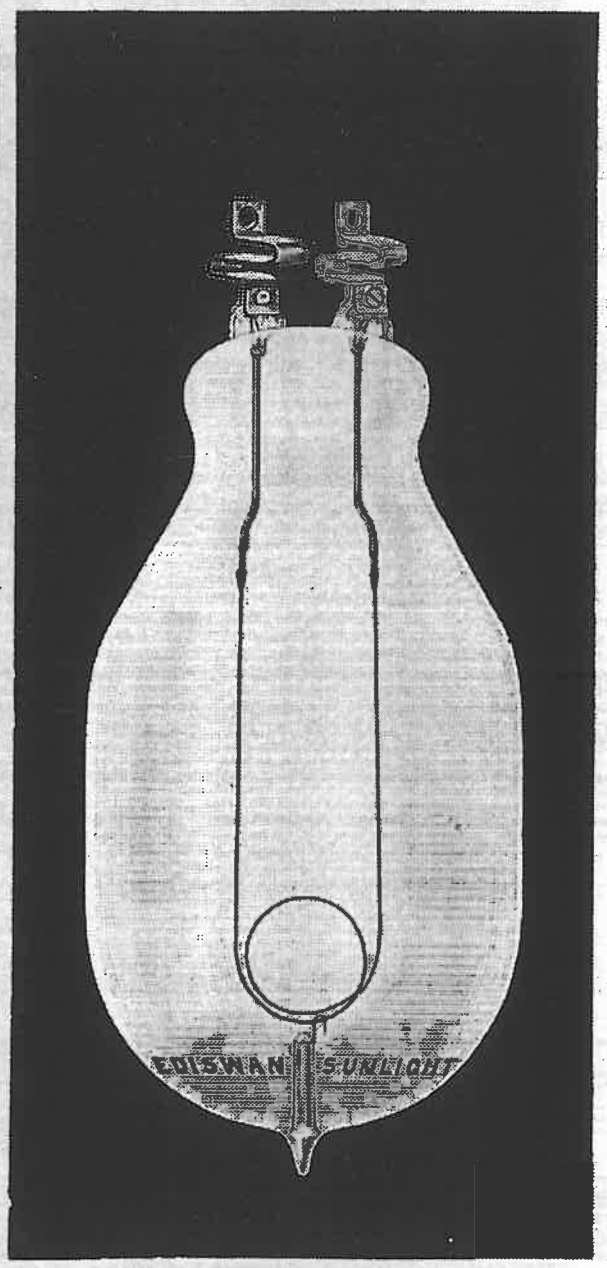


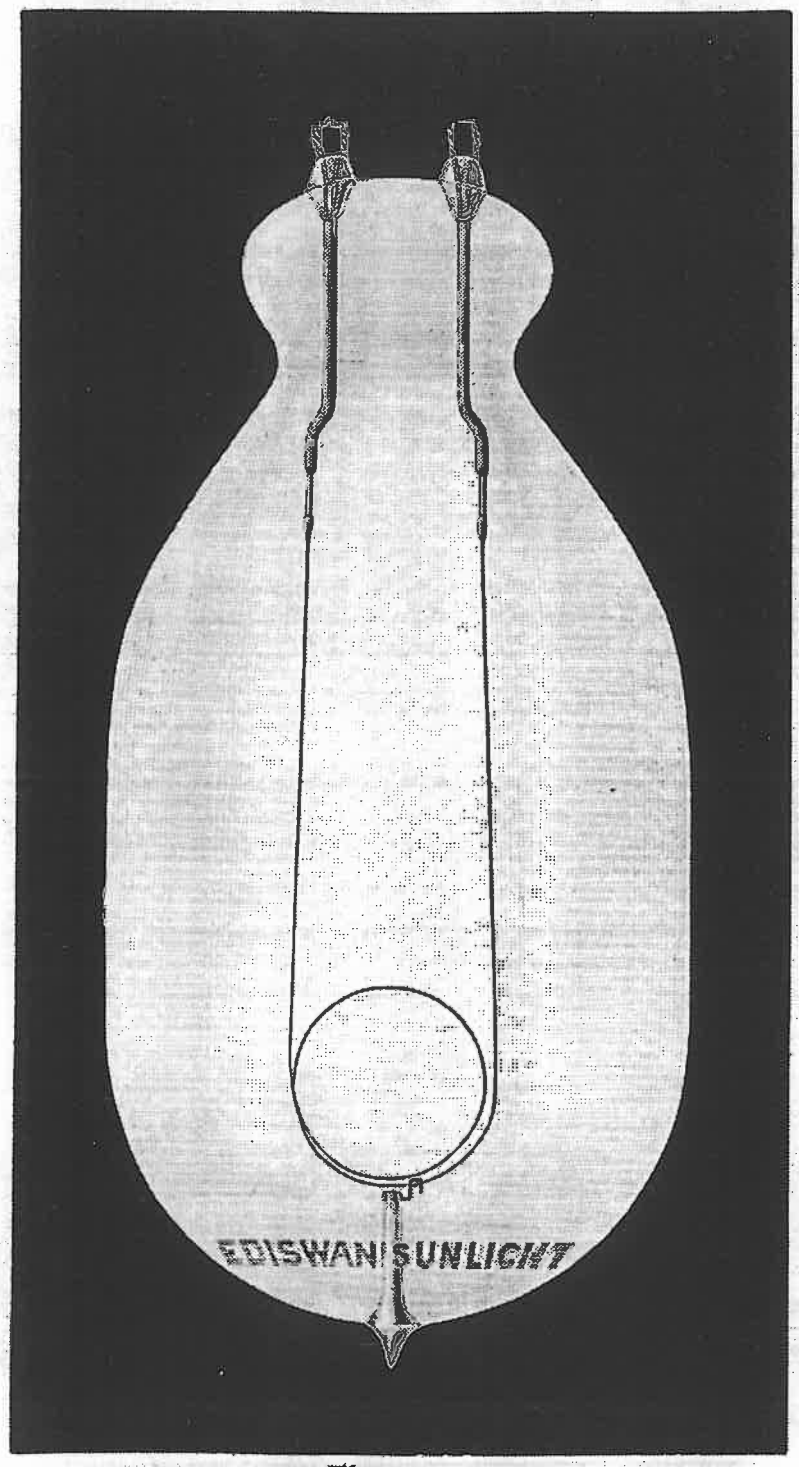
Fig. 46. *Half actual size.*

E.M.F.—50 to 120 Volts.

300, 400, 500 and 600 C.P. "SUNLIGHT LAMPS."

300 and 400 Candle-power, 50 to 120 Volts.

500 and 600 Candle-power, 65 to 120 Volts.



This illustration represents a 500 and 600 C.P. Lamp.

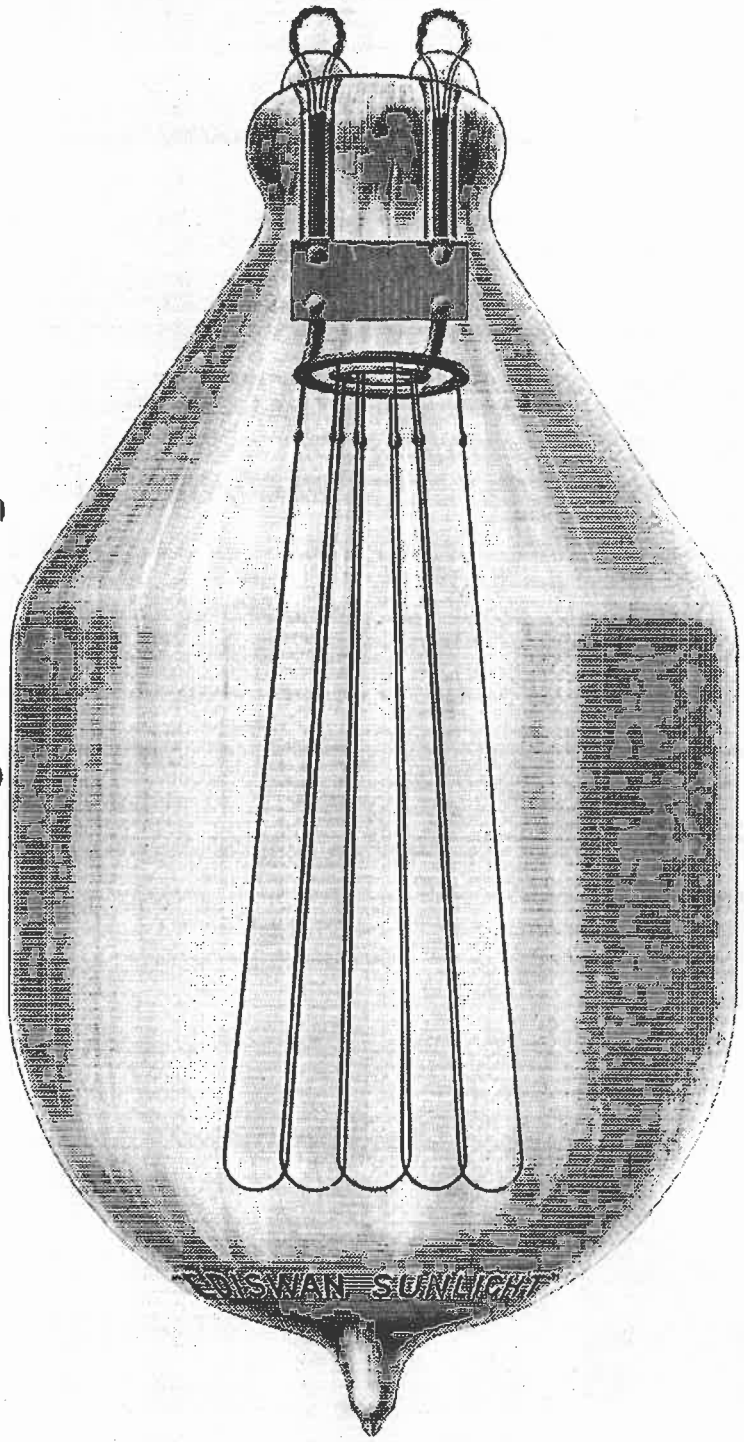
300 and 400 C.P. are slightly shorter.

Fig. 47.
Half actual size.

800, 1000, 1,500 and 2,000 C.P "SUNLIGHT LAMPS."

800 and 1,000 Candle-power, 80 to 120 Volts.

1,500 and 2,000 Candle-power 100 to 120 Volts.



This illustration represents the form, the size varying slightly according to C.P. and E.M.F.

Fig. 48.

Section 2. Class V.—FOCUS LAMPS.

WHENEVER Lamps are required to be used in the focus of a lens or mirror, so as to gather up and project all the light, it has been found that the ordinary loop filament is not satisfactory. It is necessary to concentrate the light-giving part of the Lamp, to place it in such a position that the lens or mirror gathers up all the light sent out. Lamps made for this purpose are called Focus Lamps, and are made in sizes from—

8 C.P. to 200 C.P.

Illustrations of these Lamps are shown in Figs. 49 to 53.

The Lamps are usually mounted with a special form of Holder shown in Fig. 50. This Holder allows free Ventilation and can be adjusted to the required height in a special stand. (See Fittings Section of Catalogue.)

In ordering these Lamps, customers are requested to give the Candle-power required, Voltage of the Circuit off which the Lamps are to be run, and any directions necessary as to the size and shape of the Bulb.

Quotations for any special size will be given on application.

The Standard Sizes of Focus Lamps, together with the Prices, are as follows:—

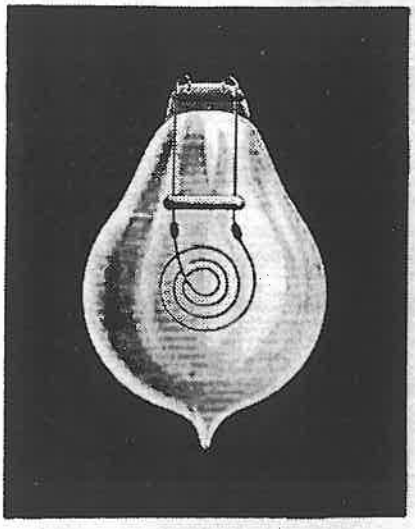
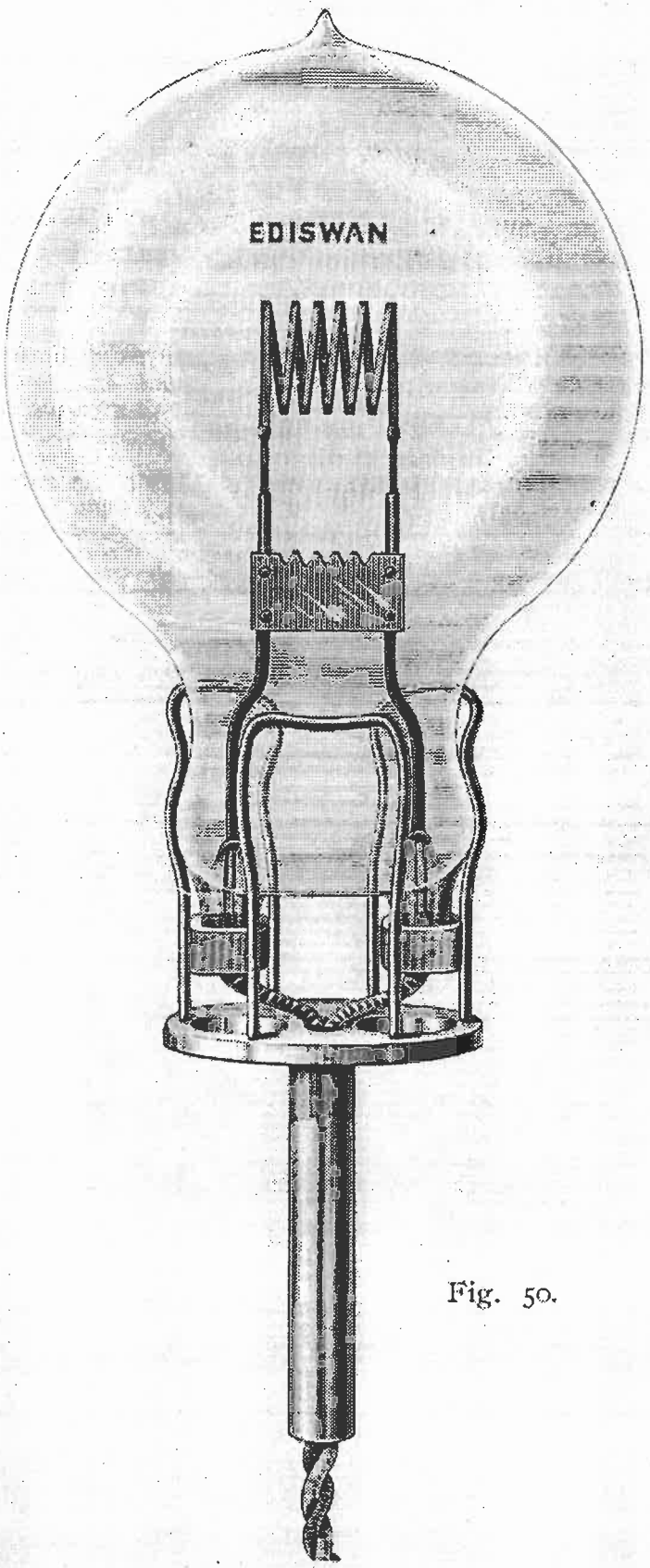


Fig. 49.
8 C.P. Small Focus Lamp.

Fig. No.	Candle-Power.	Limits of Voltage.	Price.
			s. *d.*
49	8	20 to 50	10 0
51	8	30 „ 110	10 0
51	16	30 „ 110	10 0
51	25	50 „ 110	10 0
51	32	50 „ 110	10 0
52	50	80 „ 110	10 0
52	100	80 „ 110	15 0
52	200	80 „ 110	20 0

The above price includes the special form of mount shown attached to the Lamp, illustrated in Fig. 50.



FOCUS LAMPS

Fig. 50.

8, 16, 25 and 32 C.P. FOCUS LAMPS.

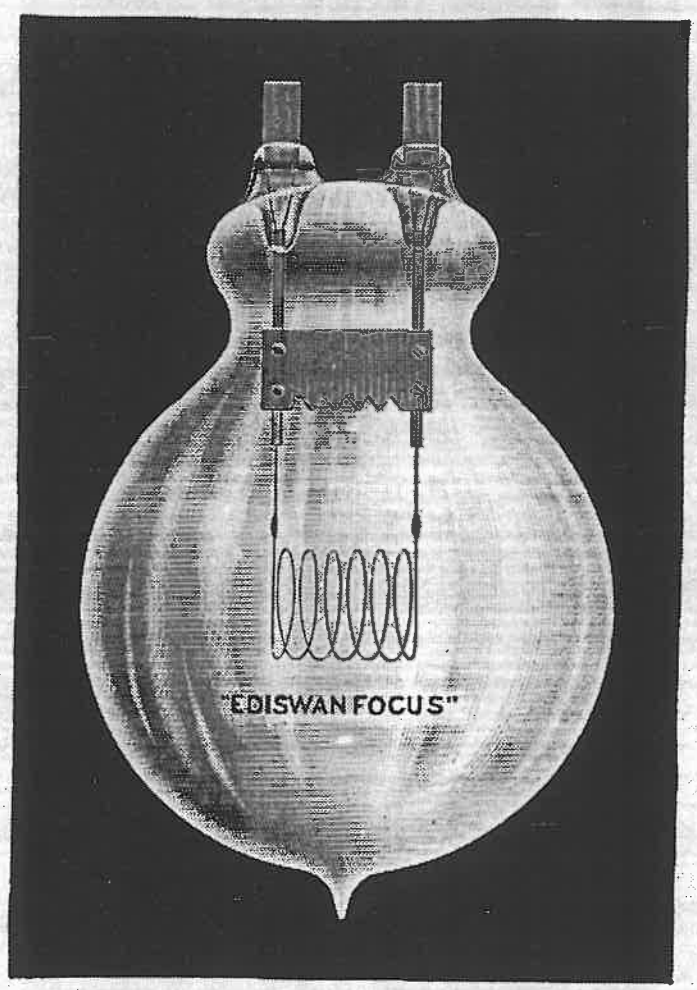


Fig. 51.

8, 16, 25 and 32 C.P. Focus Lamps.

50 or 100 C.P. FOCUS LAMPS.

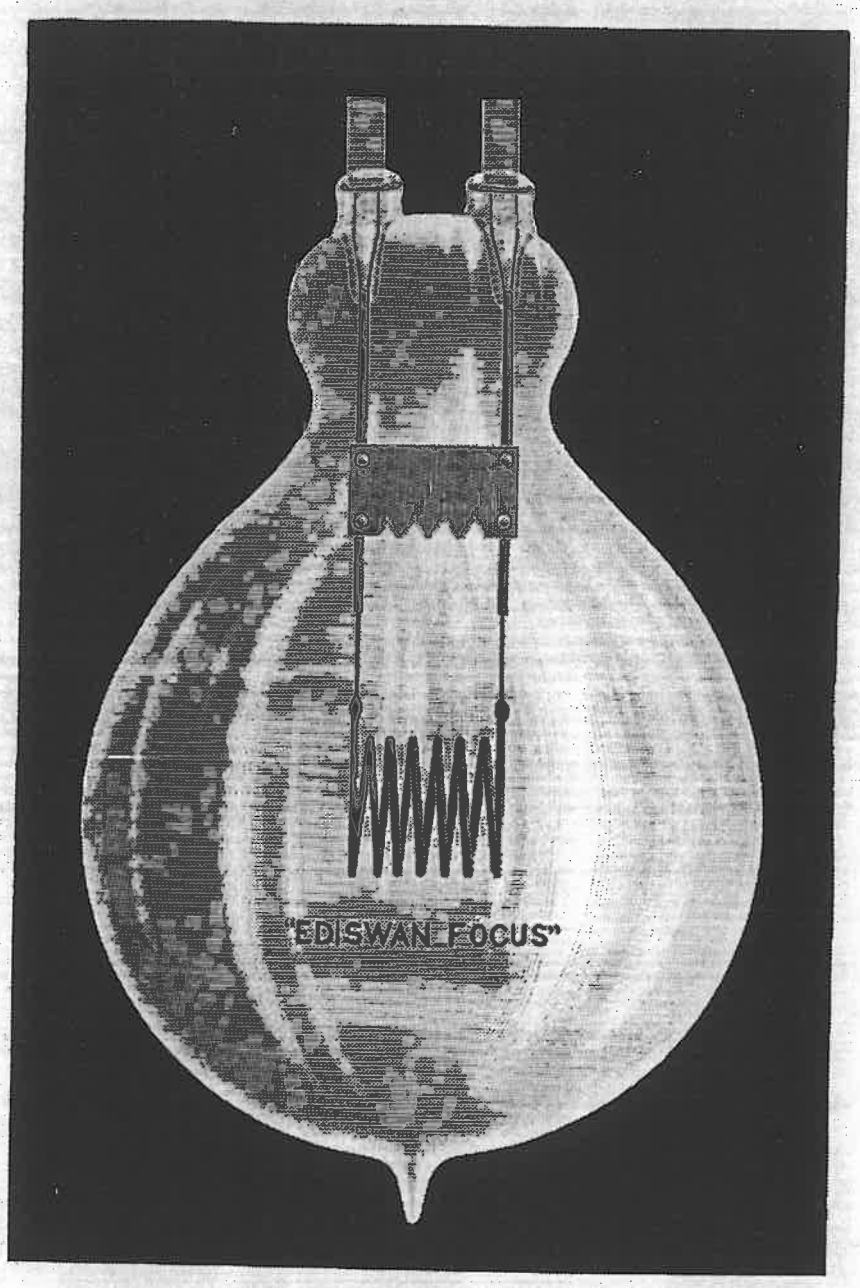


Fig. 52.

50 or 100 C.P. Focus Lamps, with Lug Terminals.

200 C.P. FOCUS LAMP.

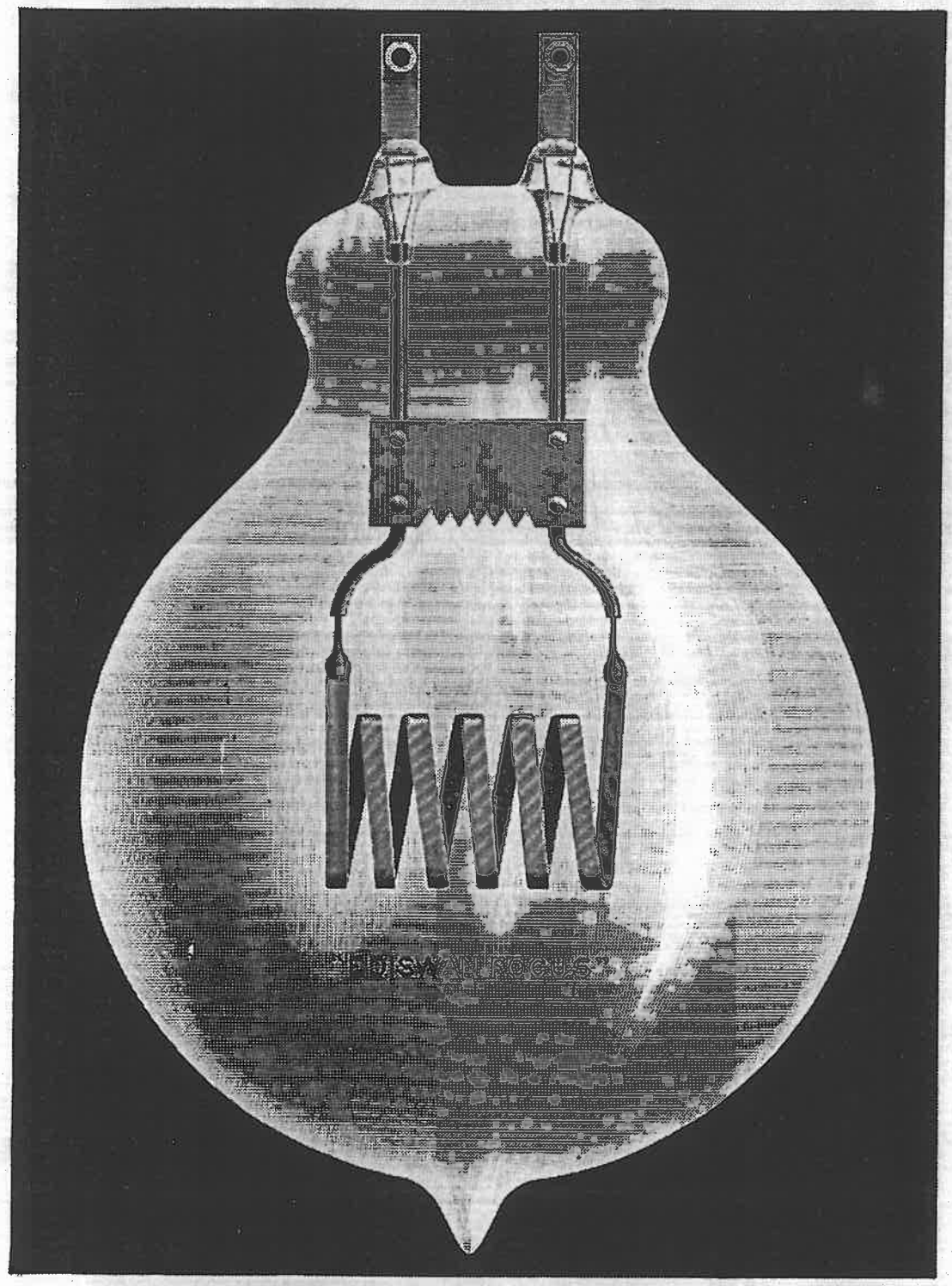


Fig. 53. 200 C.P. Focus Lamp, with Lug Terminals.

Section 2.—Class VI.—SPECIAL LAMPS.

THIS class includes Incandescent Lamps of all the various kinds used in microscopic, surgical, decorative and special work. The following illustrations will furnish examples of many types of Lamps in use, but special forms of Bulb can be manufactured to order.

Customers desiring special shaped Bulbs are requested to send a full size or enlarged drawing with scale or dimensions appended, and quotations will be given for the work.

Special Lamps can be obscured or silvered in any way to order.

The following list comprises the chief forms stocked and made, with the limits of usual Voltage. These small and Special Lamps are marked at 4 Watts per candle; hence the current taken at any Voltage can always be estimated by multiplying the Candle-power by 4 and dividing that product by the number representing the Volts.

PRICES.

Candle-power.	Limits of Voltage.	Price.
		s. *d.*
Fig. 54 about 1	2 to 8 Volts.	1 9
,, 55 ,, 1	2 ,, 8 ,,	1 9
,, 56 ,, 1	2 ,, 8 ,,	1 9
,, 57 ,, 1	2 ,, 4 ,,	5 0
,, 58 ,, 1	2 ,, 4 ,,	5 0
,, 59 ,, 1	3 ,, 8 ,,	3 9
,, 60 ,, 1	3 ,, 8 ,,	3 9
,, 61 ,, 1	3 ,, 8 ,,	5 0
,, 62 ,, 2½	50 ,, 65 ,,	18 0
,, 63 ,, 1	3 ,, 8 ,,	6 0
,, 64 ,, 1	3 ,, 8 ,,	3 9
,, 64 ,, 2½	5 ,, 8 ,,	
,, 65 ,, 1	3 ,, 8 ,,	3 9
,, 66 ,, 1	3 ,, 8 ,,	3 9
,, 67 ,, 2½	5 ,, 8 ,,	3 0
,, 68 ,, 2½	8 ,, 12 ,,	7 6

MICRO., MINIATURE AND FAIRY LAMPS.

MINIATURE LAMPS. Fig. 54.

Fig. 54.
Full size.

THESE Lamps are used for surgical and dental work, for fitting in flowers (real or artificial), head-dresses, and for various other effects. Mounts of any kind supplied to order at an extra charge.

E.M.F., 2 to 8 Volts.

PENCIL-SHAPED MICRO. OR FAIRY LAMPS. Fig. 55.

Fig. 55.
Full size.

These small Pencil-shaped Lamps are adapted for many microscope and surgical purposes, electrical jewellery, theatrical and other effects.

The illustration represents a Lamp unmounted. Mounts will be supplied to customers' instructions at an extra charge.

E.M.F., 2 to 8 Volts.

ROUND MICRO. LAMPS. Fig. 56.

Fig. 56.
Full size.

This figure represents another form of Microscope Lamp, and for use where the light is not required to be so close to the object, is better than the pencil-shaped form on account of the larger bulb, which gives it greater durability. It is also very useful for decorative purposes. Mounts will be supplied at an extra charge.

E.M.F., 2 to 8 Volts.

ILLUSTRATIONS OF MICRO., MINIATURE AND FAIRY LAMPS.

Fig. 57.

Fig. 58.

Fig. 59.

Fig. 60.

Fig. 61.

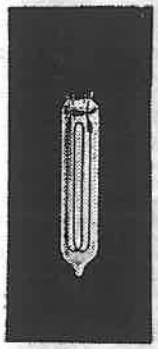


Fig. 62.

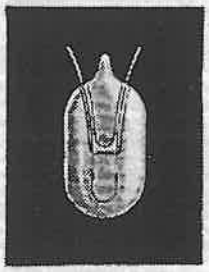


Fig. 63.

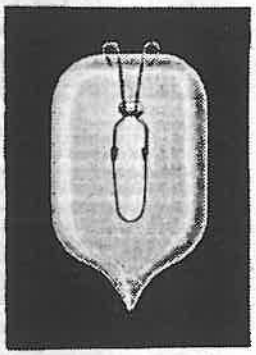


Fig. 64.

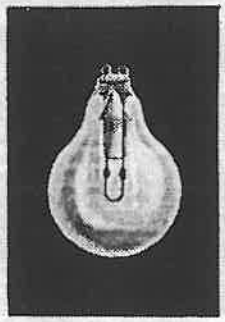


Fig. 65.

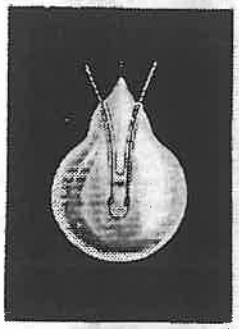


Fig. 66.

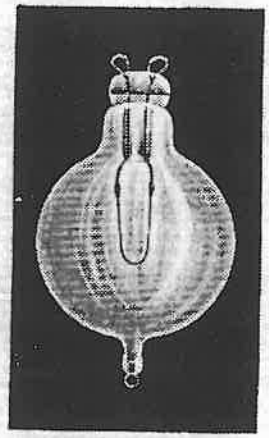


Fig. 67.

Fig. 68.

CRINKLED LAMPS.

THESE Lamps are largely used for decorative purposes, and are designed to represent candle flames. They are supplied with Obscured, Opal, or Coloured Bulbs if desired. The most suitable mount for Nos. 500 to 516 is the small Edison Screw, Small Brass Collar or Small Centre Contact.

Fig. No.	C.P.	Limits of Voltage.	Description.	Price.
				s. *d.*
69	1	3 to 8		3 3
70	5	20 „ 35		2 6
	8	20 „ 25		2 6
	8	20 „ 25	Bent Similar to 516.	3 9
73	5	40 „ 50		2 6
72	5	80 „ 100	Double Filament.	3 9
72	8	80 „ 110		3 9
72	16	80 „ 110	High Efficiency.	3 9
71	5	40 „ 50		3 9
	5	80 „ 100	Double Filament.	5 6
	8	80 „ 110		5 6
	16	80 „ 110	High Efficiency.	5 6
75	8	30 „ 35		3 0
	16	30 „ 35		3 0
74	8	40 „ 110		3 3
	16	40 „ 110		3 3
76	8	80 „ 110		3 9
	16	80 „ 110		3 9

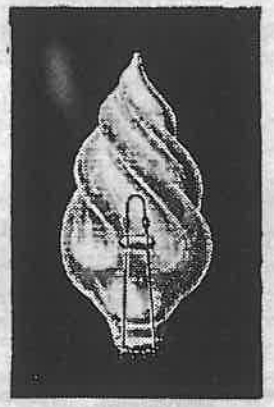


Fig. 69.

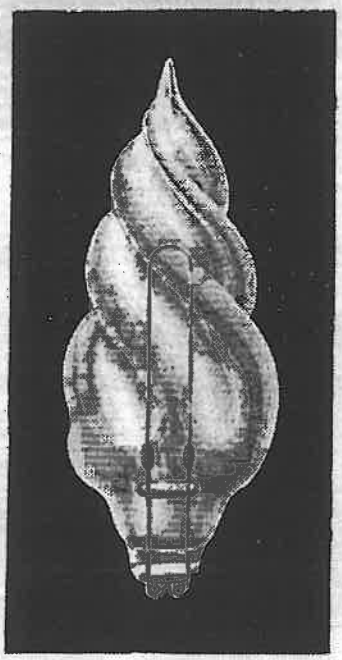


Fig. 70.

SEC. 2.

Class VI.

Crinkled Lamps.

CRINKLED LAMPS.

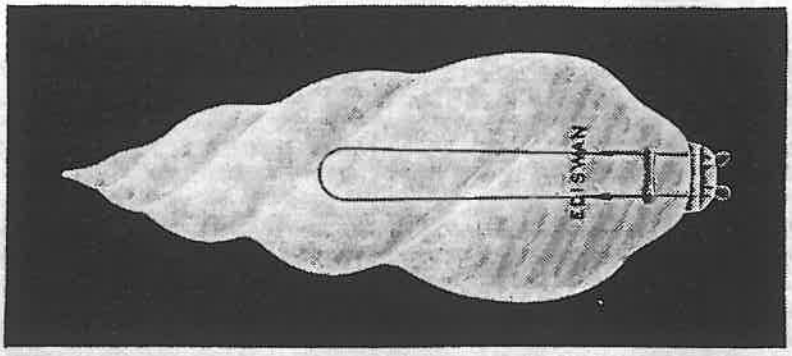


Fig. 73.

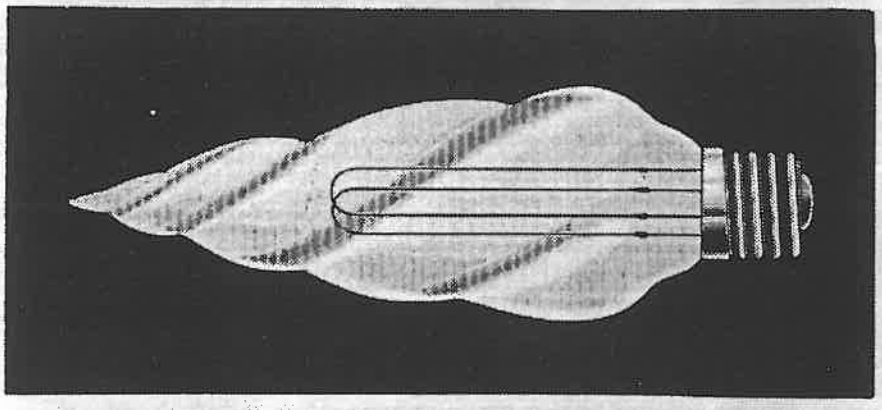


Fig. 72.

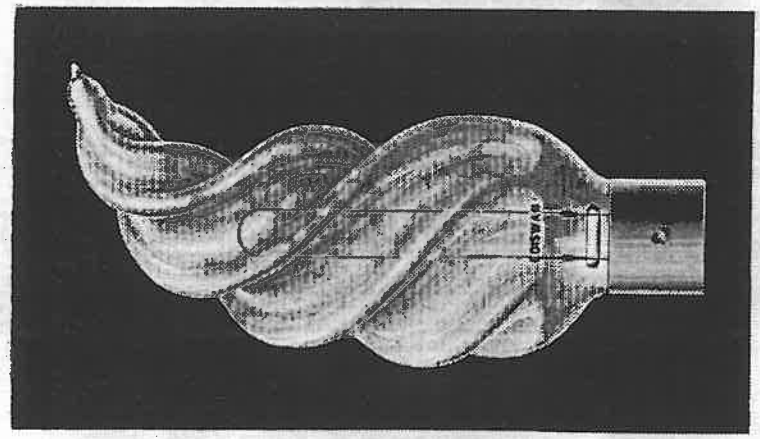


Fig. 71.

CRINKLED LAMPS.

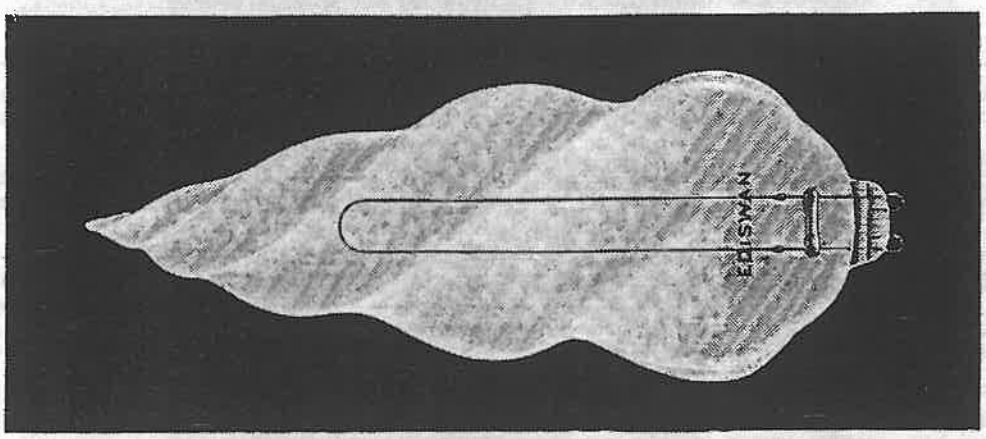


Fig. 75.

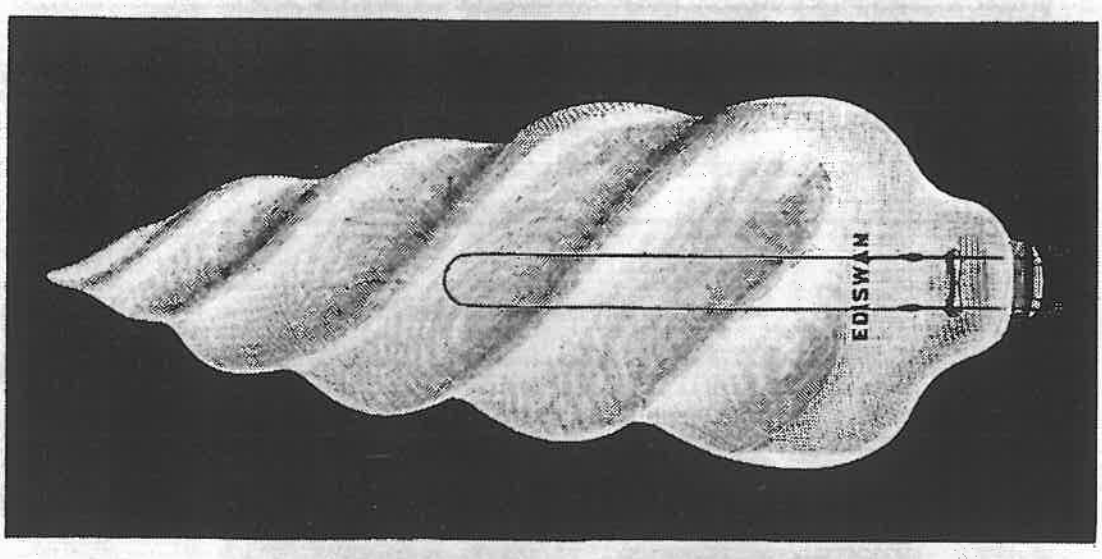


Fig. 74.

SEC. 2.

Class VI.

Crinkled Lamps.

CRINKLED LAMPS.

Fig. 76.

TUBULAR AND FESTOON LAMPS.

THESE Lamps are largely used for ornamental purposes in conjunction with some special form of bracket, chandelier or candle fitting, where artistic effect is obtained by grouping a number of lights together.

Some of these special Lamps are used for running under water, examination of guns, festoon chains, etc., as stated below.

Fig. No.	Description.
78, 79	For the examination of small bore guns, etc.
83	Used for the illumination of Telescope vernier scales, etc.
81	These Lamps are grouped together in chains, and give a very pretty effect. They can be supplied in various colours.
82, 84, 85, 86, 87	Usually supplied with Obscured Bulbs, for use in candle fittings, to imitate candle flames.
88	Used in groups of 8 or 10 for flash signalling purposes.
94	Run under water for safety in the neighbourhood of explosives.

Particulars of C.P., Voltage and Price will be found in following Table.

TUBULAR AND FESTOON LAMPS.

Fig. No.	Candle-power.	Limits of Voltage.	Price. s.	Price. d.
77	5	8 Volts.	3	6
78	1	15 ,,	3	0
79	2½	15 ,, 25 ,,	3	0
	5	10 ,, 15 ,,		
80	5	20 ,, 35 ,,	3	0
	8	20 ,, 25 ,,		
82	5	20 ,, 35 ,,	2	6
	8 and 16	20 ,, 25 ,,		
83	1	10 ,,	3	3
81	2½	7 ,, 9 ,,	2	9
84	5	40 ,, 50 ,,	2	6
	8 and 16	30 ,, 35 ,,		
85	5	40 ,, 50 ,,	2	6
	8 and 16	30 ,, 35 ,,		
86	8	40 ,, 50 ,,	2	9
87	5	20 ,, 50 ,,	3	3
88	8	50 ,, 80 ,,	3	3
89	8	60 ,, 80 ,,	3	0
90	8	80 ,, 105 ,,	3	0
91	16	80 ,, 105 ,,	3	0
92	5	80 ,, 105 ,,	3	0
	8 and 16	40 ,, 65 ,,		
93	5	80 ,, 105 ,,	3	0
	8 and 16	40 ,, 65 ,,		
94 †	8 ,, 16	40 ,, 65 ,,	6	0
95	8	50 ,,	9	0
96	8 and 16	80 ,, 105 ,,	3	3

† *For running under water.*

TUBULAR AND FESTOON LAMPS.

These illustrations are all full size.

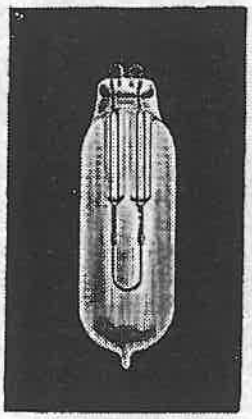


Fig. 77.

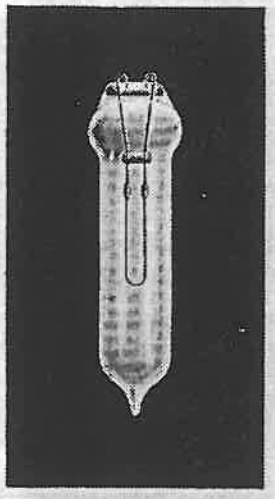


Fig. 78.

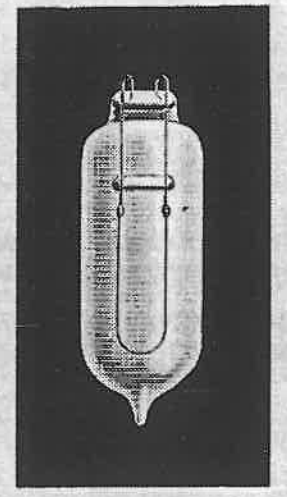


Fig. 79.

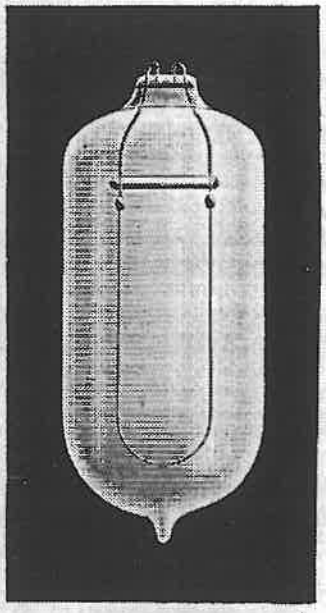


Fig. 80.

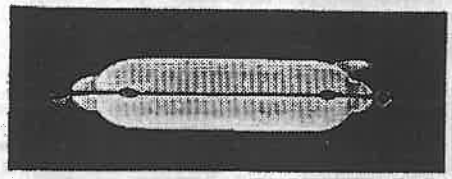


Fig. 81.

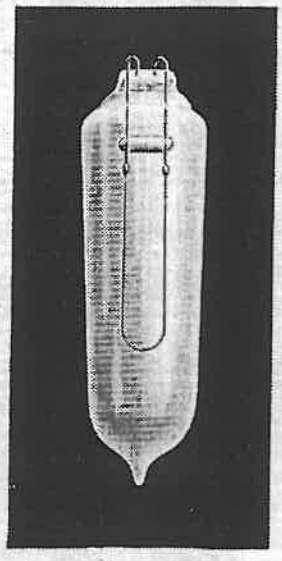


Fig. 82.

Fig. 83.

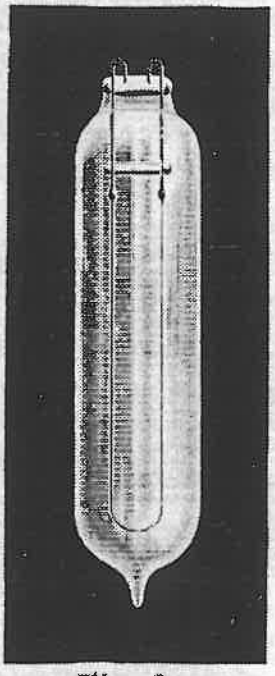


Fig. 84.

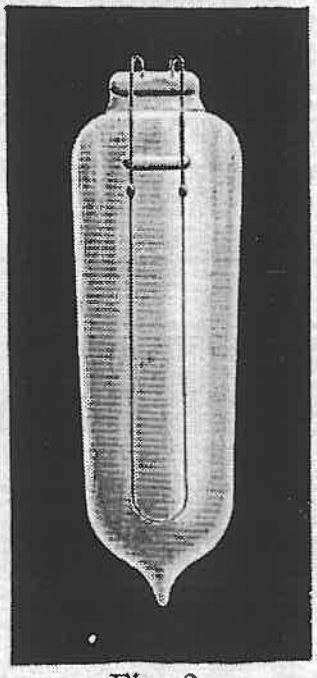


Fig. 85.

TUBULAR AND FESTOON LAMPS.

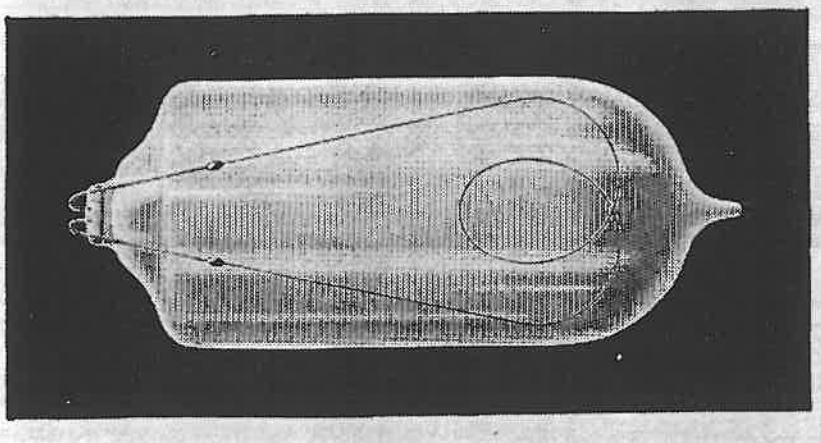


Fig. 89.

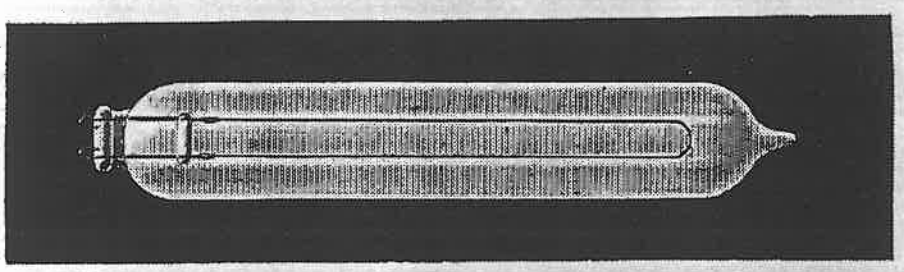


Fig. 88.

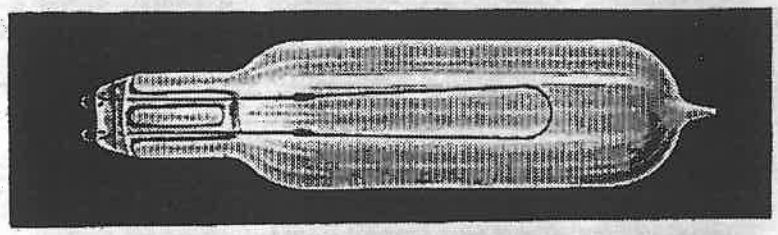


Fig. 87.

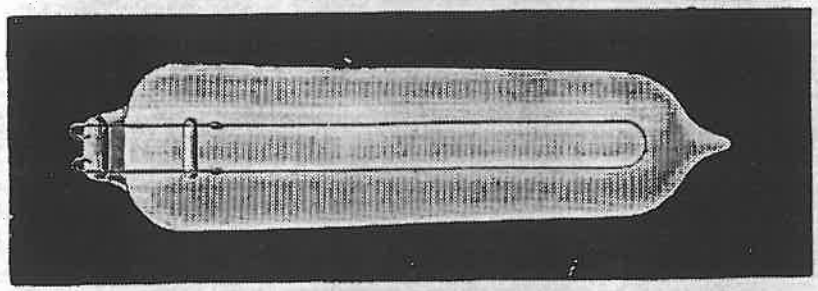


Fig. 86.

All full size.

TUBULAR AND FESTOON LAMPS.

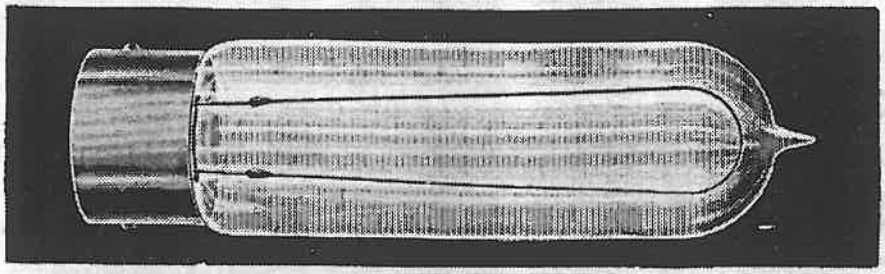


Fig. 93. B.C. TERMINAL.

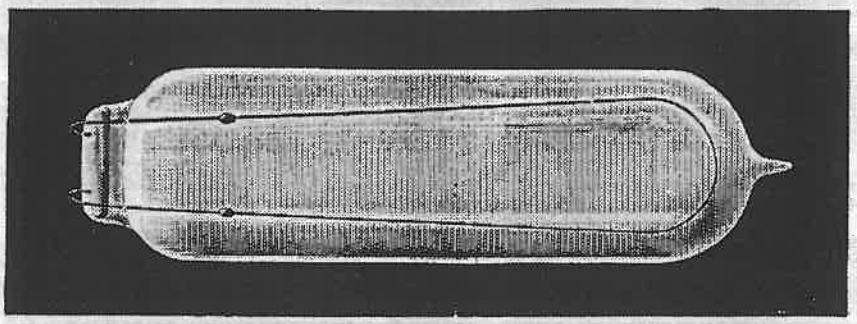


Fig. 92.

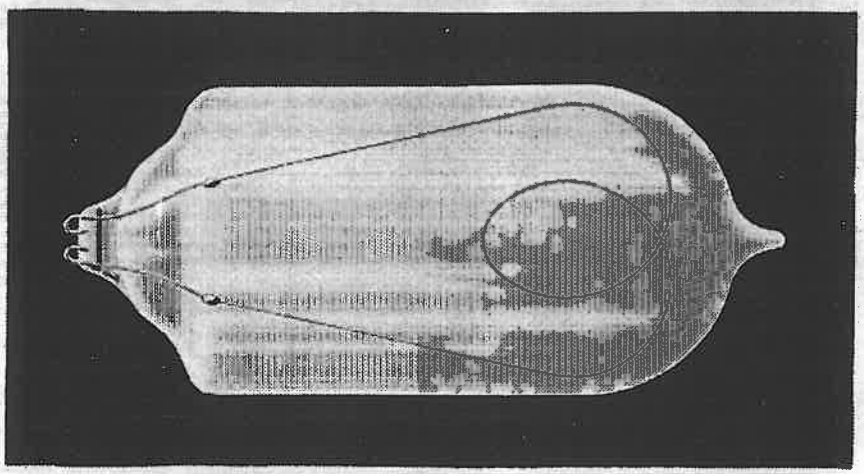


Fig. 91.

All full size.

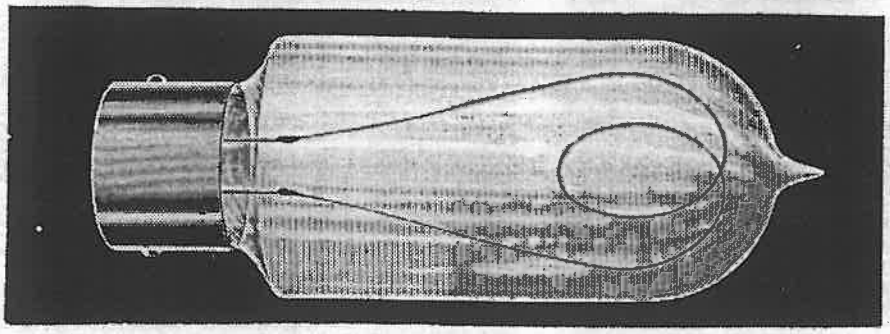


Fig. 90. B.C. TERMINAL.

TUBULAR AND FESTOON LAMPS.

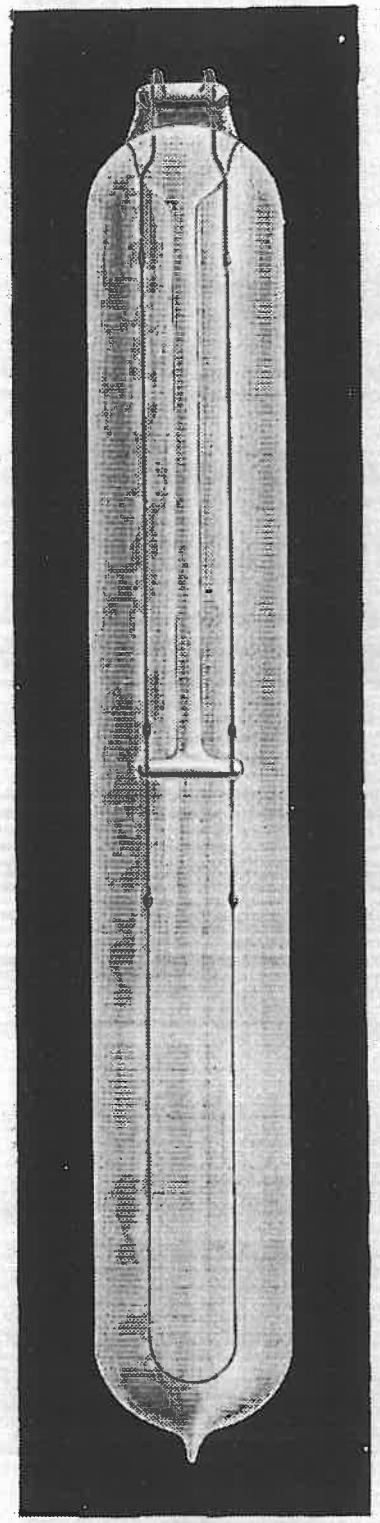


Fig. 94.

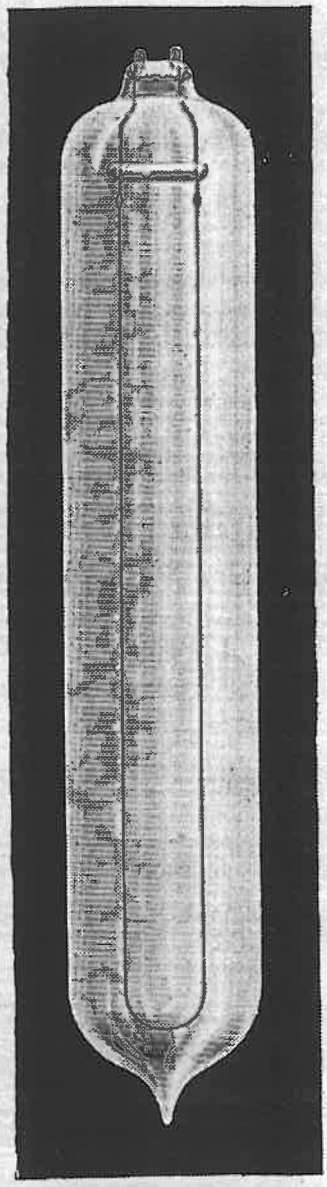


Fig. 95.

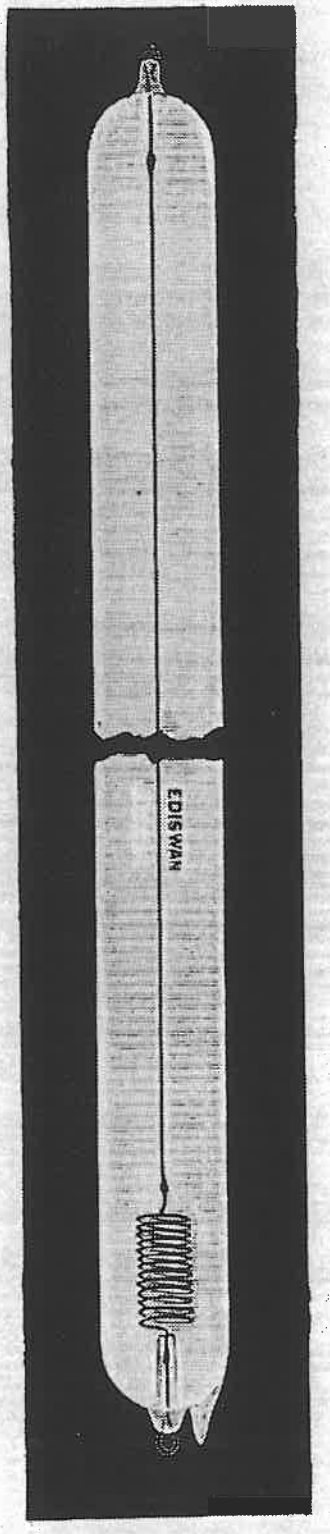


Fig. 96.

CONICAL LAMPS.

THESE Lamps are used for decorative purposes; some being made to represent candle flames.

Fig. No.	C.P.	Limits of Voltage.	Description.	Price.
				s. *d.*
97	1	3 to 8		3 0
	2½	15 „ 18		3 0
98	2½	15 „ 20		3 0
99	5	20 „ 80		3 0
100	5	20 „ 50		3 3
100	5	80 „ 100	Double Filament. High Efficiency.	5 6
100	8	20 „ 35		3 3
100	8	80 „ 110	Double Filament. High Efficiency.	5 6
100	16	80 „ 110		
101	5	40 „ 100		3 9
101	8	40 „ 110		3 9
101	16	30 „ 110		3 9
102	16	80 „ 110		3 9
102	25	80 „ 100		3 9
103	5	40 „ 110		3 9
103	8	40 „ 110		3 9

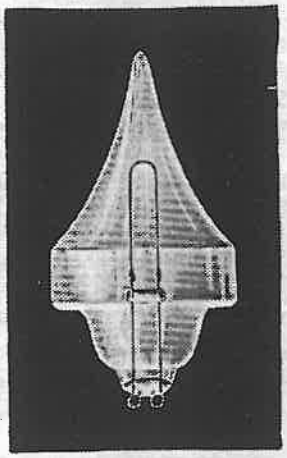


Fig. 97.

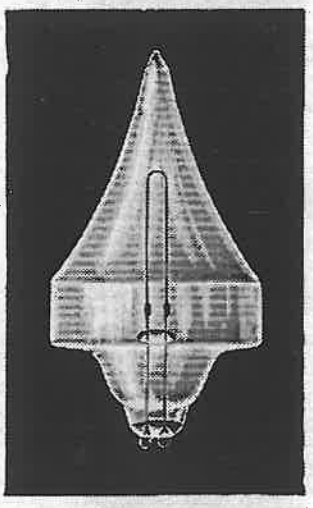


Fig. 98.

CONICAL LAMPS.

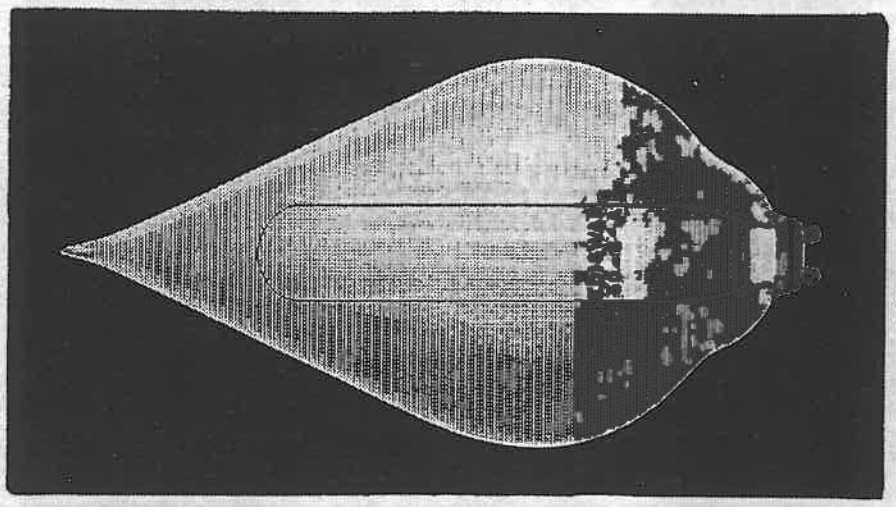


Fig. 101.

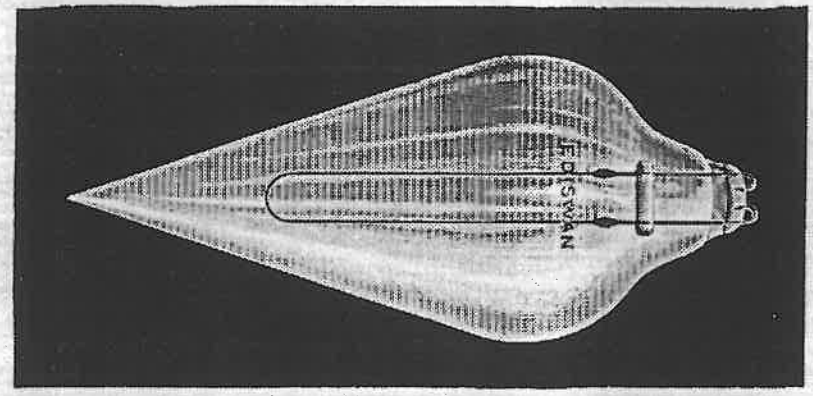


Fig. 100.

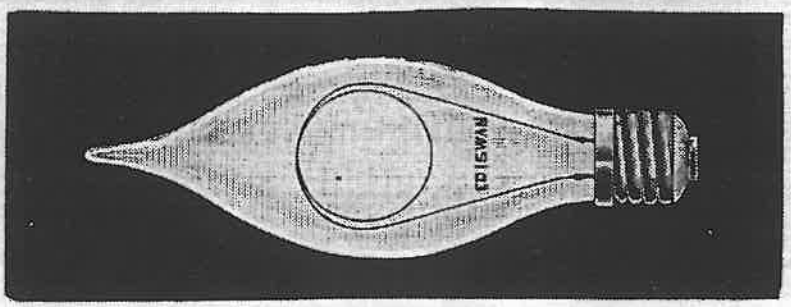


Fig. 99.

CONICAL LAMPS.

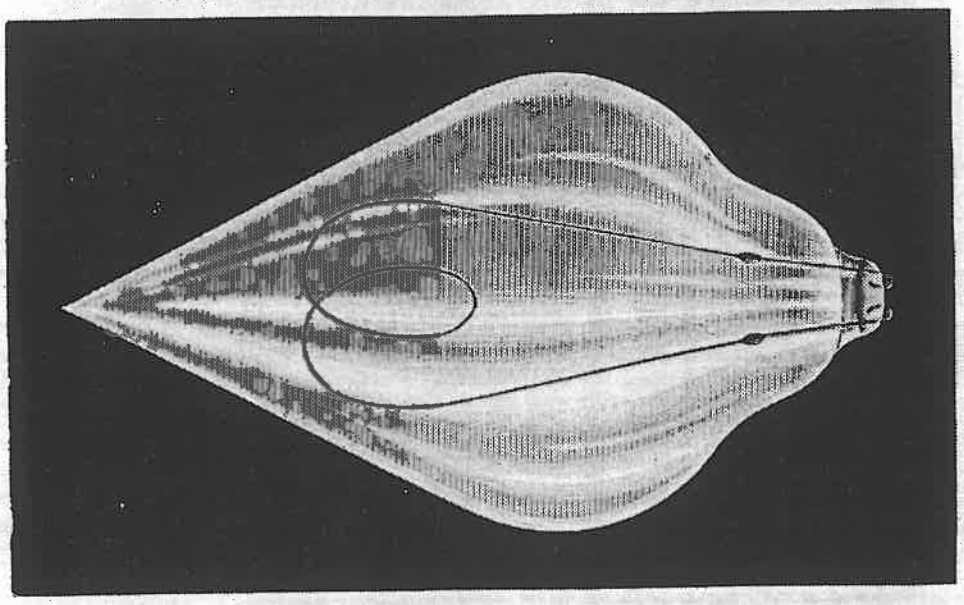


Fig. 103.

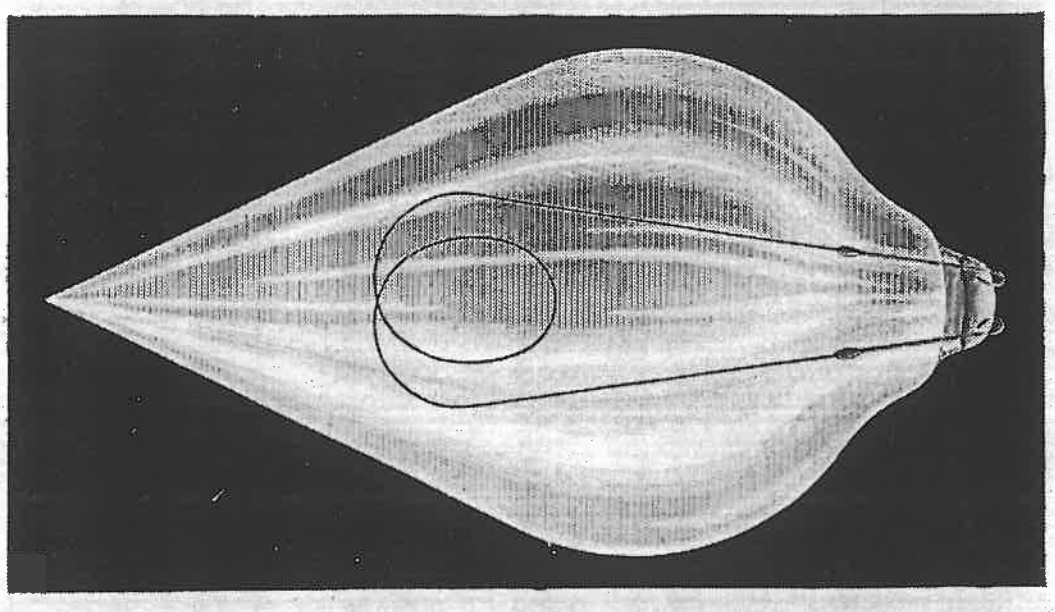


Fig. 102.

SPIROLA LAMPS.

PRETTY lighting effects are obtained by these Lamps, the light being split up by the spiral fluting of the Bulb.

Fig. No.	Candle-power.	Limits of Voltage.	Price.	
			s.	*d.*
104	16	40 „ 110 Volts.	3	9
105	5	40 „ 110 „		
	8	40 „ 110 „		
106	5	20 to 50 „		
	8	20 „ 35 „		
	16	30 „ 35 „		
107	32	80 „ 110 „	4	0
108	8 and 16	40 „ 110 „	5	0

SPIROLA LAMPS.

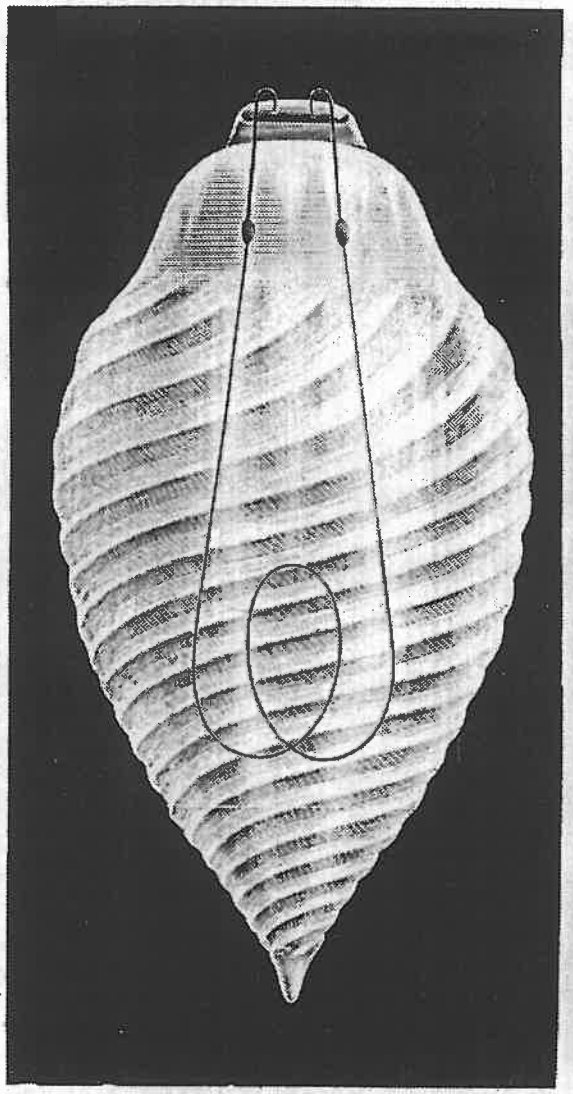


Fig. 104.

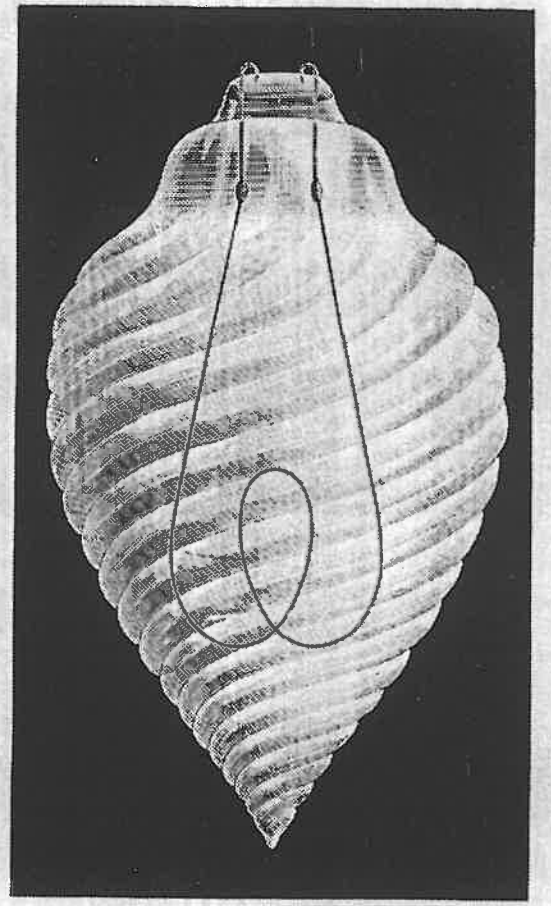


Fig. 105.
All full size.

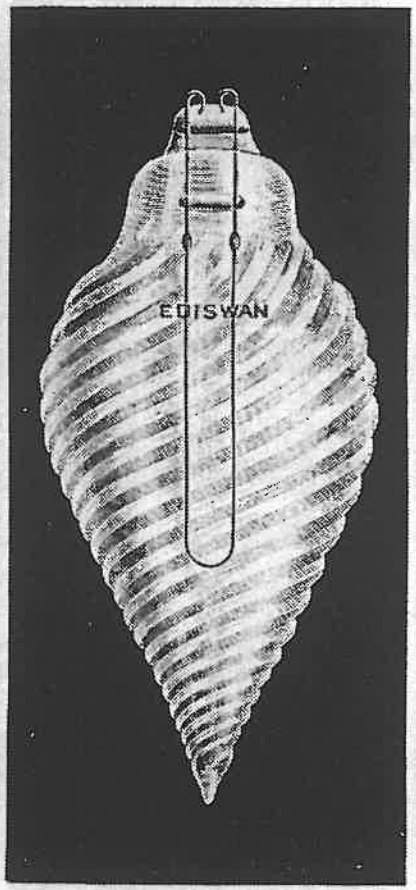


Fig. 106.

SPIROLA LAMPS.

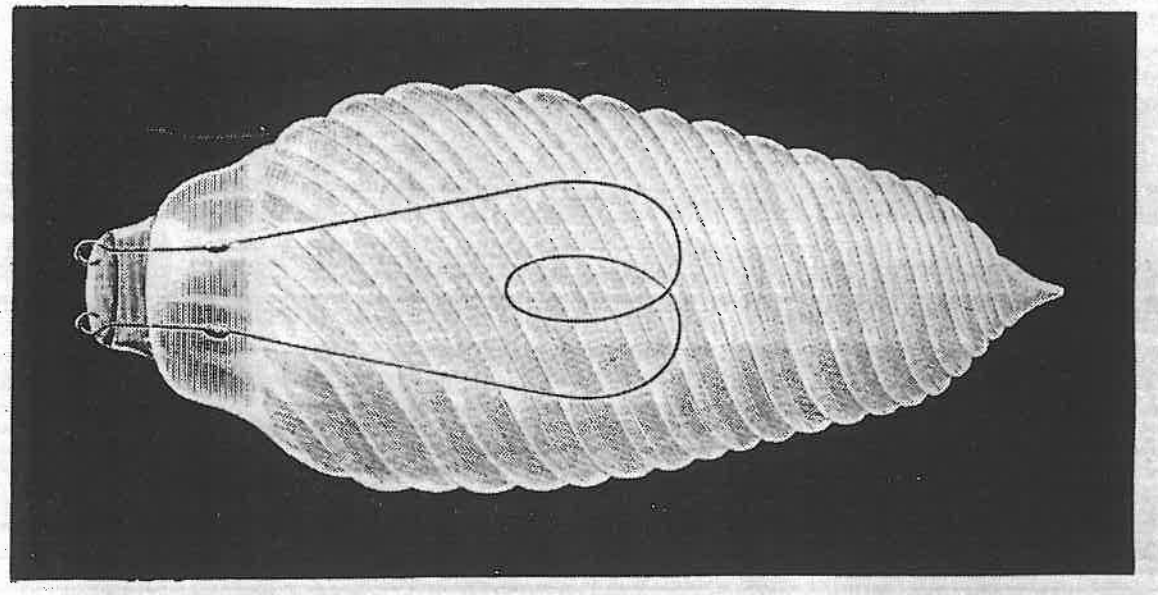


Fig. 108.

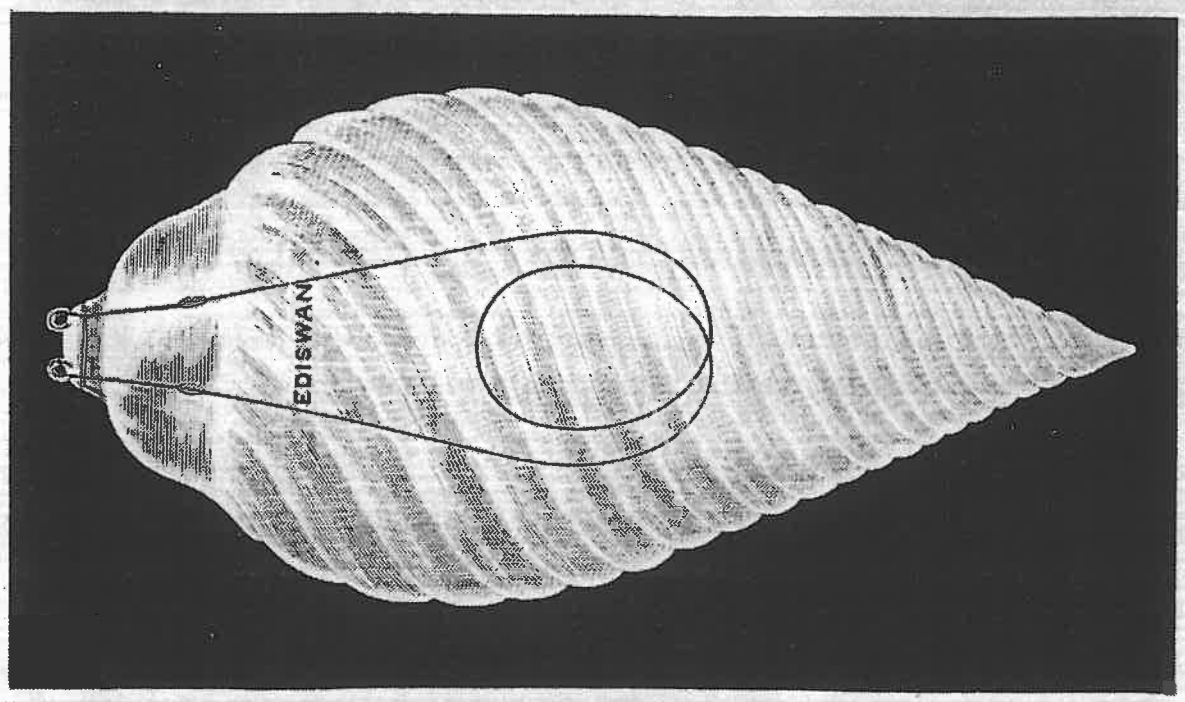


Fig. 107. *Both full size.*

CUT GLASS, FLUTED AND ICED LAMPS.

THESE Lamps have a highly artistic appearance, and diffuse the light without much absorption.

The following are the names by which they are known in the trade; the EXTRA Prices quoted for Nos. 110 to 114 are the Prices for the Special Glass over and above the Price quoted in the List for Plain Glass Lamps:—

Figure No.	109, Cut Glass	PRICE	10/–.
„	110, Diamond Marked ...	„	1/– per Lamp extra.
„	111, Circular Ribbed ...	„	1/3 „ „
„	112, Iced Glass	„	2/6 „ „
„	113, Acorn	„	3/– „ „
„	114, Vertically Fluted ...	„	2/– „ „

Most of the illustrations show No. 2 and No. 3 Bulb Lamps, but they can be supplied of any measurements, usually made with either No. 1, 2, 3A or 3 Bulbs.

Lamp No. 590, Conical Fluted—

5 C.P.	20 to 50 Volts	... ...	PRICE	6/6
8 „	20 „ 33 „	... ...	„	6/6

CUT GLASS, FLUTED AND ICED LAMPS.

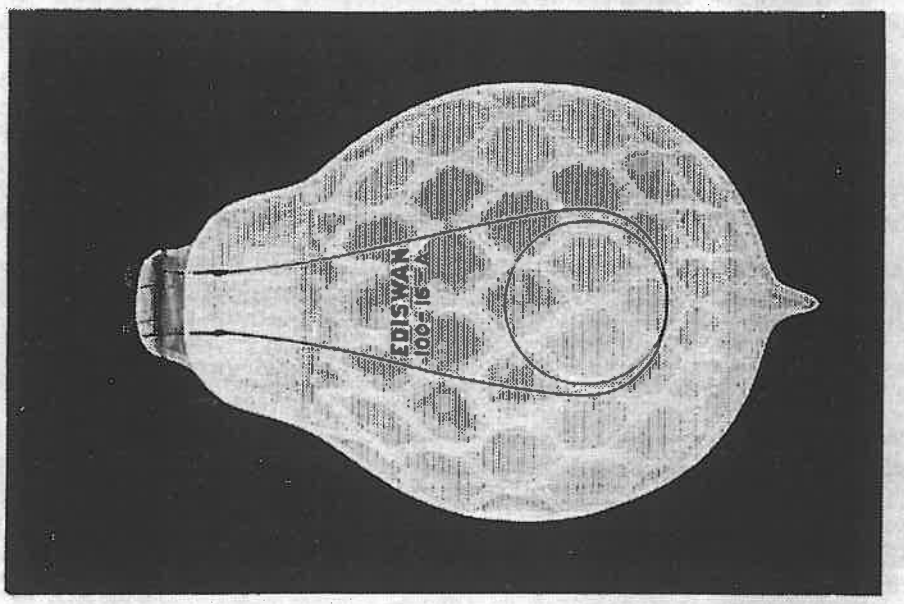


Fig. 110.

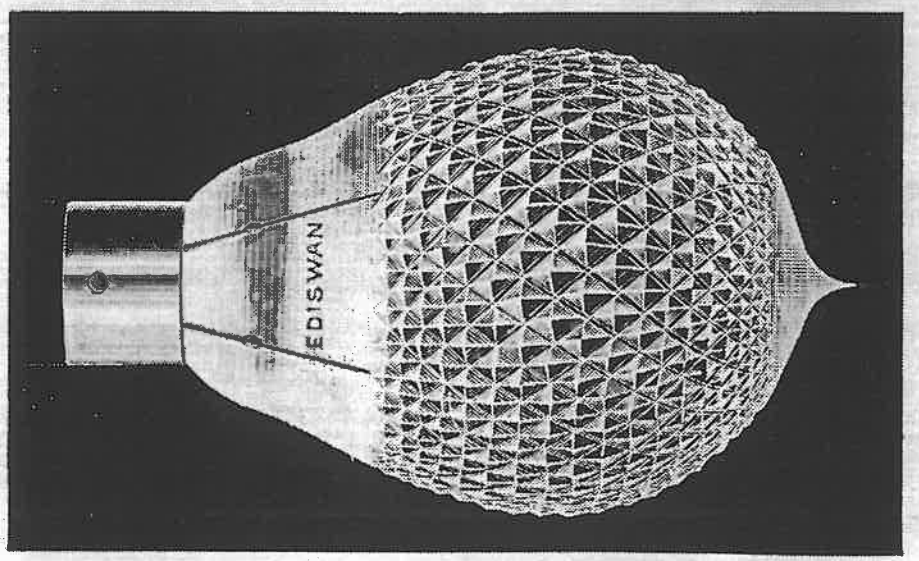


Fig. 109.

CUT GLASS, FLUTED AND ICED LAMPS.

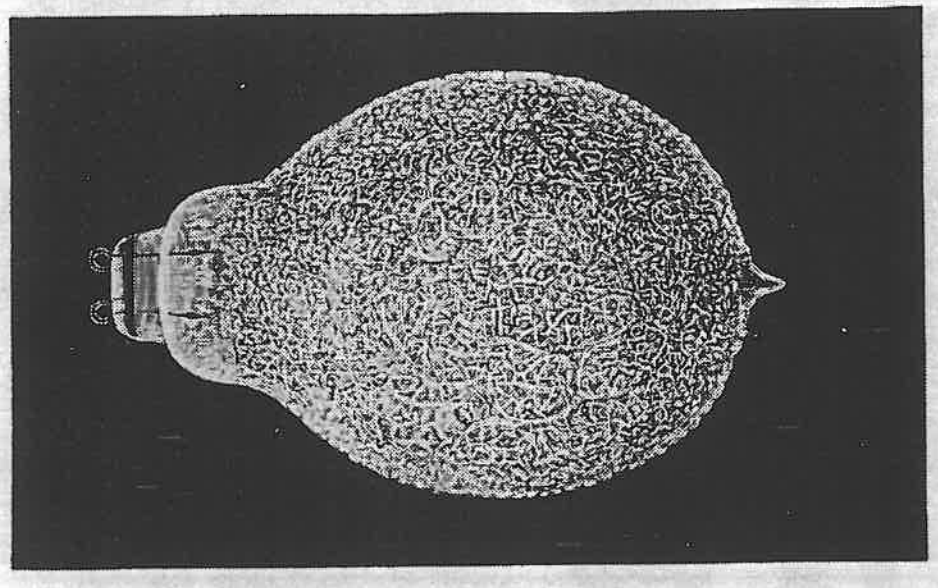


Fig. 112.

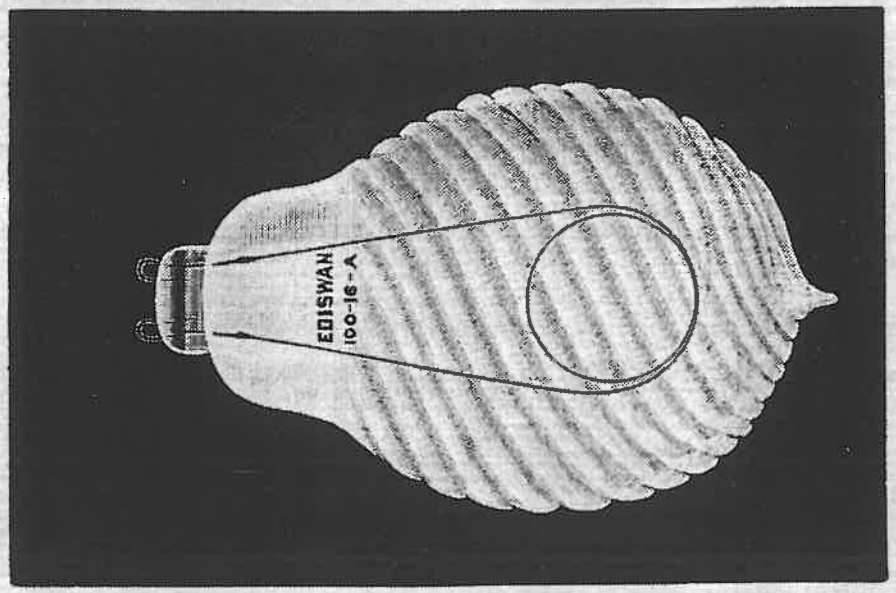


Fig. 111.

CUT GLASS, FLUTED AND ICED LAMPS.

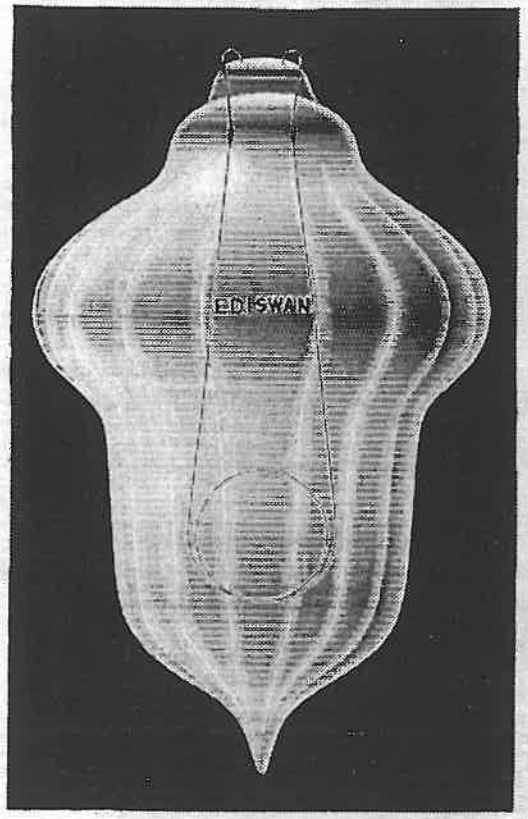


Fig. 113.

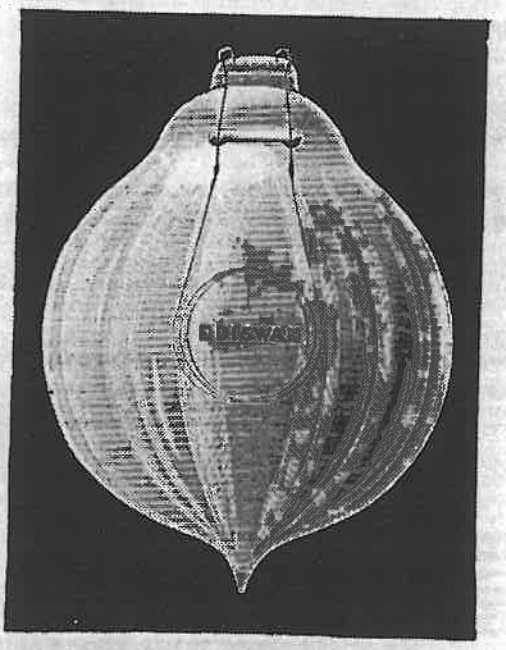


Fig. 114.

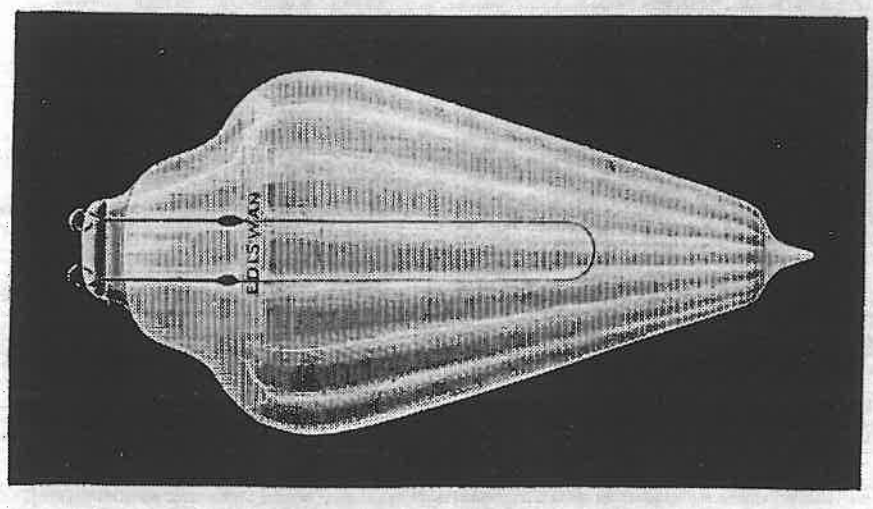


Fig. 115.

LAMPS WITH DOUBLE FILAMENTS, for

HORIZONTAL RUNNING,

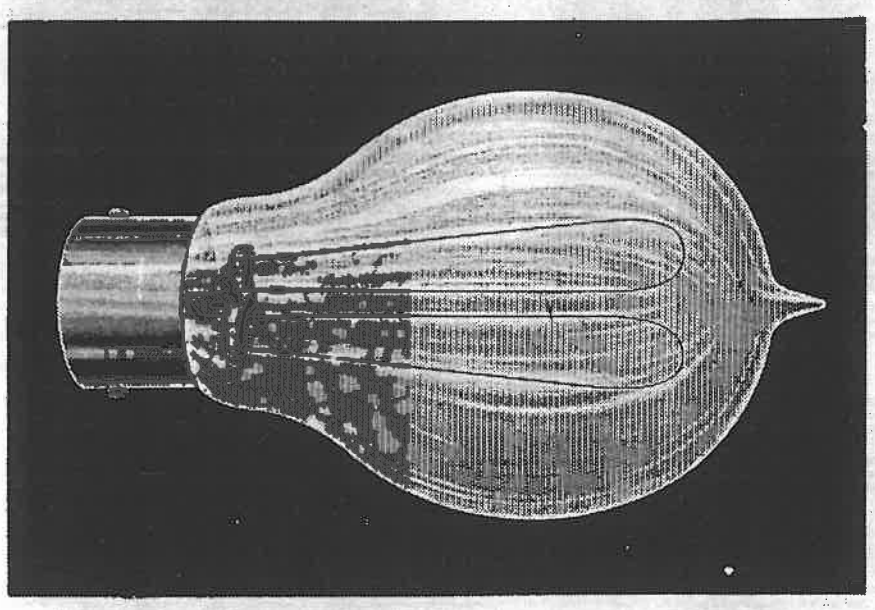
SHIP'S SIDE LIGHT,

MILL LIGHTING,

TRAIN LIGHTING,

BI-LIFE LAMPS.

THERE are many conditions under which it is necessary to employ Lamps with Double Filaments, either for the sake of security or for employing at pleasure one or two Filaments joined in series or in parallel.



Lamp for horizontal running. Fig. 116.

PRICE 2/3

Whenever Lamps are used in a horizontal position, and the Voltage of the Circuit compels the use of long thin Filament Lamps, it is advisable to

LAMPS WITH DOUBLE FILAMENTS—*continued.*

use Lamps with the Filament made in two portions and connected in series as shown in the illustration.

These Lamps are also useful for running in places where excessive vibrations are liable to cause the long thin Filament of high E.M.F. Lamps to touch the side of the Bulb and cause fracture.

It has been found that the ordinary long Filament Lamps are not suitable for running amongst machine driving belts, owing to the fact that electrification of the belts takes place and the filament is attracted to the glass, which is consequently sometimes cracked. If possible, the Lamps used should be of low voltage, such as 60 volts., and of the "longer duration" class (A), as described on page 23, but if it is necessary to use Lamps of higher E.M.F., special Lamps with double filaments—as shown in Fig. 116—can be supplied for this purpose.

LAMPS WITH DOUBLE FILAMENTS—*continued.*

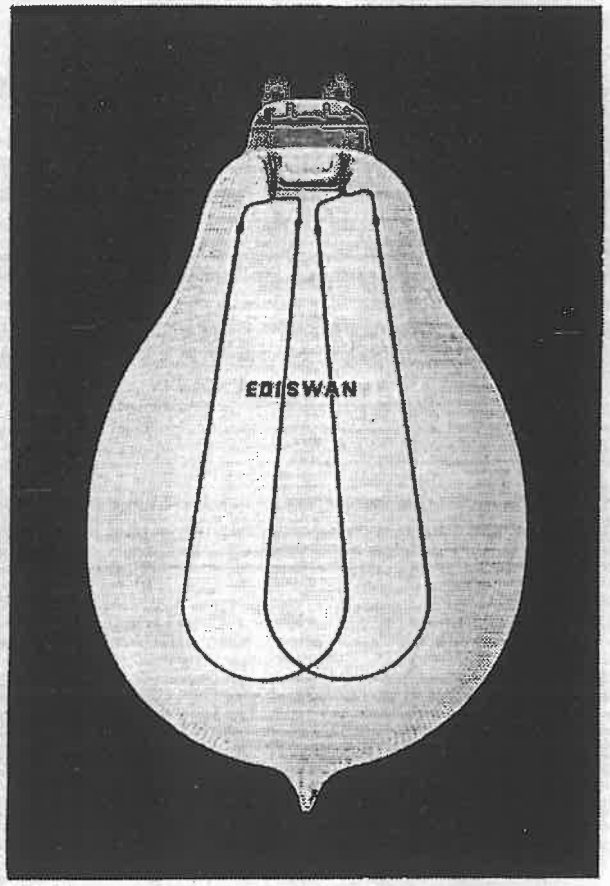


Fig. 117.

IT is sometimes important that the permanence of the light should not depend upon one Filament for its continuance, as in the case of Side Lights aboard ship.

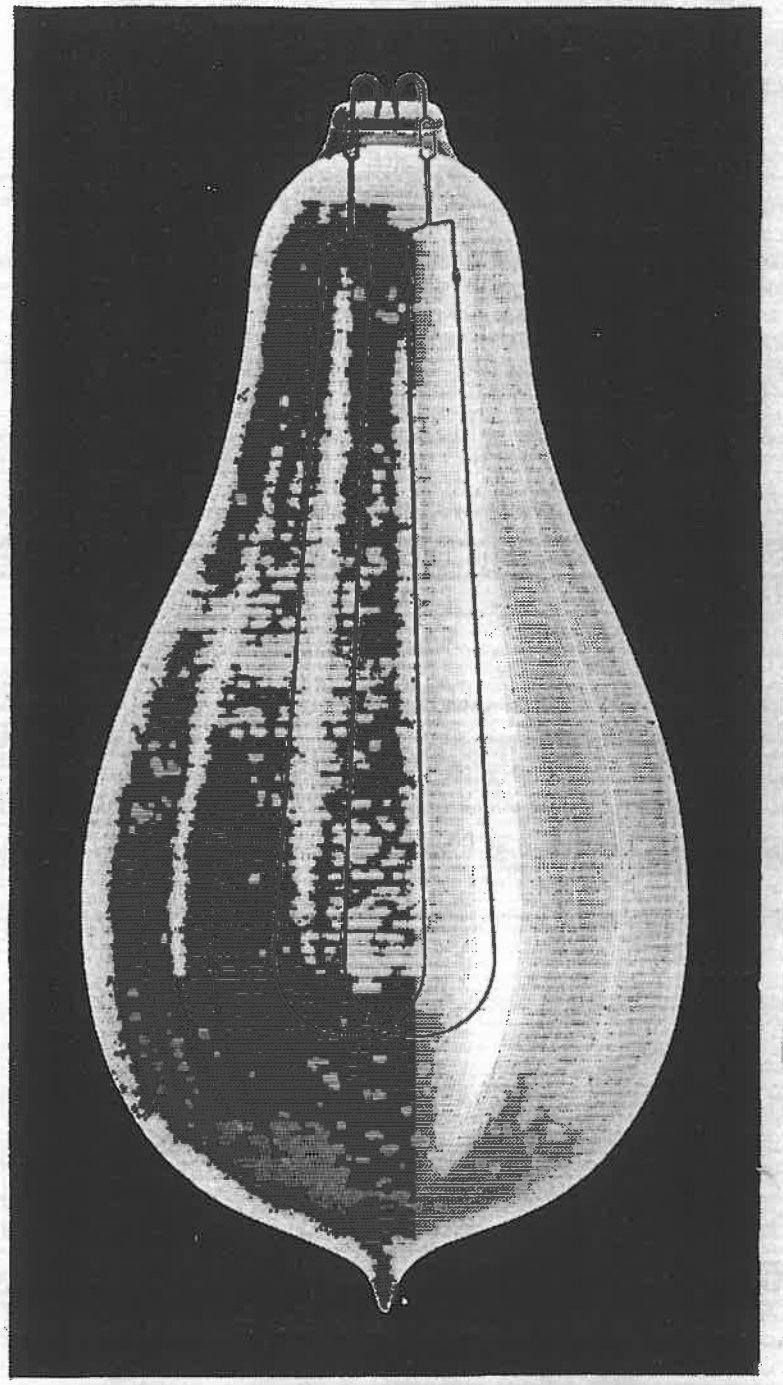
The most suitable Lamp for such positions is one having two Filaments connected in parallel inside the Bulb, as shown in the accompanying illustration. If one Filament breaks the other is left.

They are made in the following sizes :—

DOUBLE FILAMENT LAMPS.

Candle-power.	Limits of Voltage.	No. of Bulb.	Price.	
			s.	*d.*
8	40 to 60 Volts.	2	3	6
16	40 „ 60 „	2	3	6
25	40 „ 60 „	2	3	6
32	40 „ 60 „	2	4	0

DOUBLE FILAMENT LAMPS—*continued.*



Lamp for Ship Side Lights. Fig. 118.

PRICES.

Candle-power.	Limits of Voltage.	Bulb.	Price. s.	Price. d.
8	80 to 110	Special Bulb.	3	6
16	80 „ 110		3	6
25	80 „ 110		3	6
32	80 „ 110		4	0

TWISTED LOOP LAMPS.

THESE Lamps are made with Strong Double Platinum Wire Twisted Loops, and are very extensively used for Ship Lighting.

Their advantage over ordinary B.C. or E.S. Lamps is that the contacts do not deteriorate with vibrations or corrosion as is frequently the case with Lamps fitted with Brass Terminals.

This form of Loop can be supplied with all 2½, 5, 8, 16, 25, and 32 C.P. Standard Lamps enumerated in Section No. 2, but we here illustrate the two Lamps principally used, viz: 60 and 100 Volts. The 100 Volt is made with Double Filament in order to stand the vibrations of Engines.

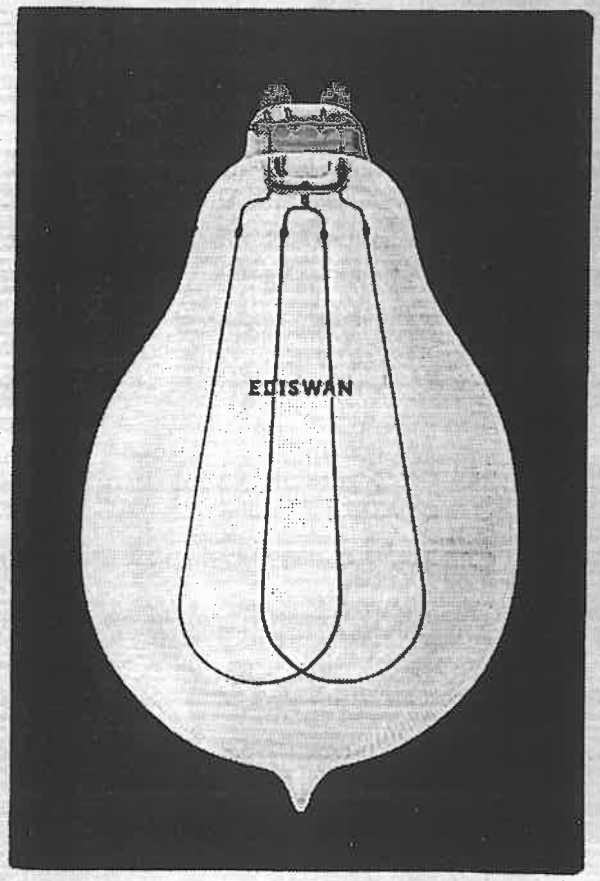


Fig. 119. PRICE 3/6.

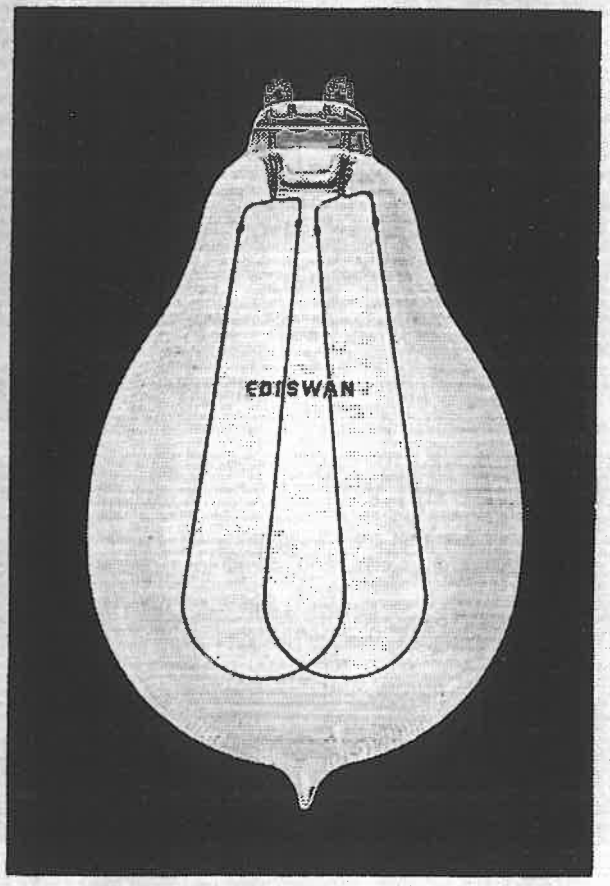


Fig. 120. PRICE 3/6.

LAMPS FOR TRAIN LIGHTING.

IN some cases it is necessary to employ Lamps with Two Filaments to be worked at different voltages. In these cases Lamps can be supplied having Three Terminals, one of which is common to the ends of a pair of filaments which have their other ends respectively attached to the second and third Terminals. See Figs. 121 and 122.

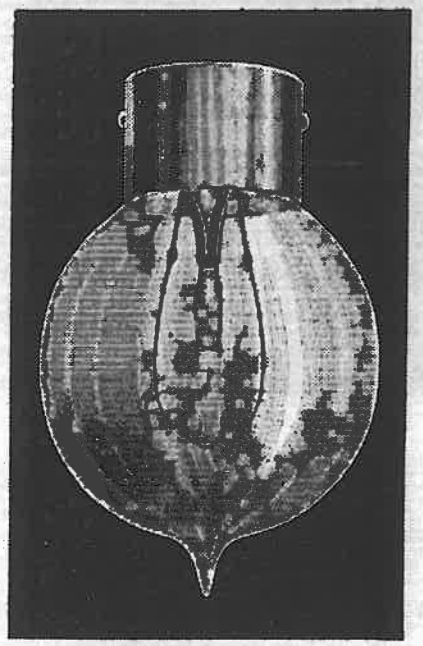


Fig. 121.

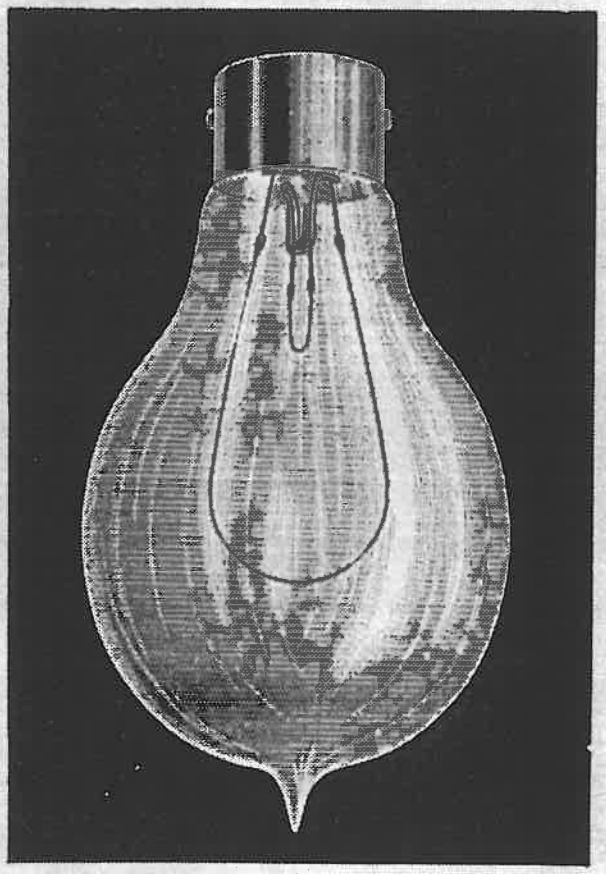


Fig. 122.

					s.	d.
Fig. 121.	8	C.P. and	25	Volts	7	6
Fig. 121.	2½	„ „	8	„	7	6
Fig. 122.	8	„ „	50	„	7	6
Fig. 122.	2½	„ „	8	„	7	6

BI-LIFE LAMPS.

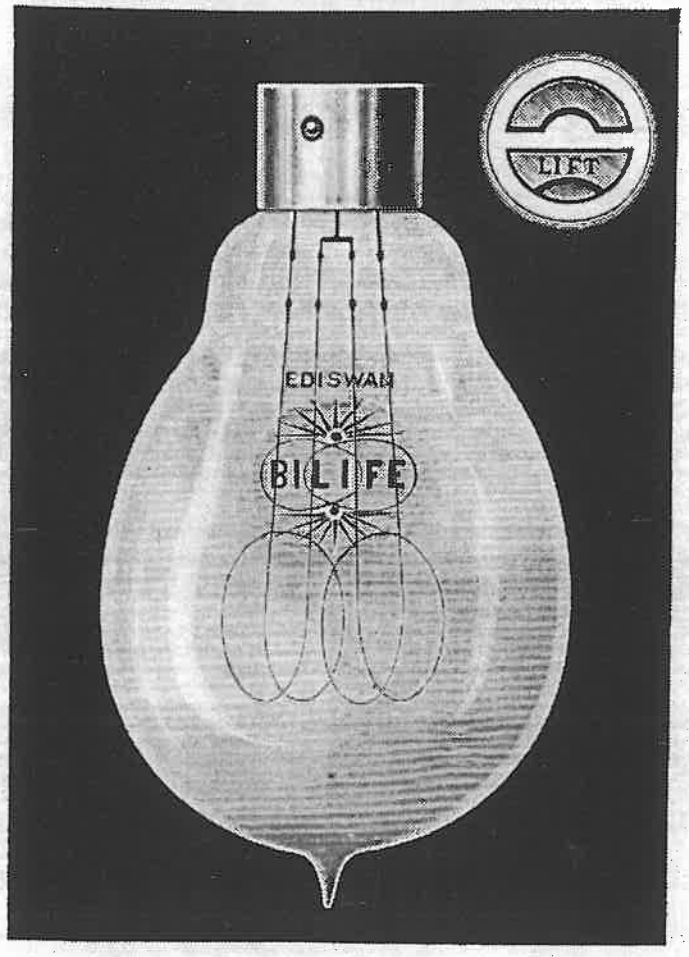


Fig. 123.

IN some cases it is important to have a Lamp of such a kind that if the Filament breaks and no second Lamp to replace it is at hand, there is a reserve Filament which can be brought into use at once. This is achieved by the employment of a Lamp with two Filaments, one of which can immediately be brought into use when the first breaks. The arrangement of the Lamp is shown in Fig. 123. There are two Filaments, one end of each is in connection with one of the Sole Plates on the bottom of the Lamp; one of the Sole Plates is double, having one Plate laid over another, but insulated. The second Filament is attached to the underlying Plate. When the Lamp

"BI-LIFE" LAMPS—*continued.*

is supplied it can be used at first in the ordinary way. When the first Filament is broken the Sole Plate marked "Lift" should be lifted off, which can be done by a penknife, as shown in the illustration, when the second or reserve Filament will be brought into action. The Lamp can then be replaced in the socket, and will at once light up with a second life. The operation of raising the first Sole Plate is shown in Fig. 123a.

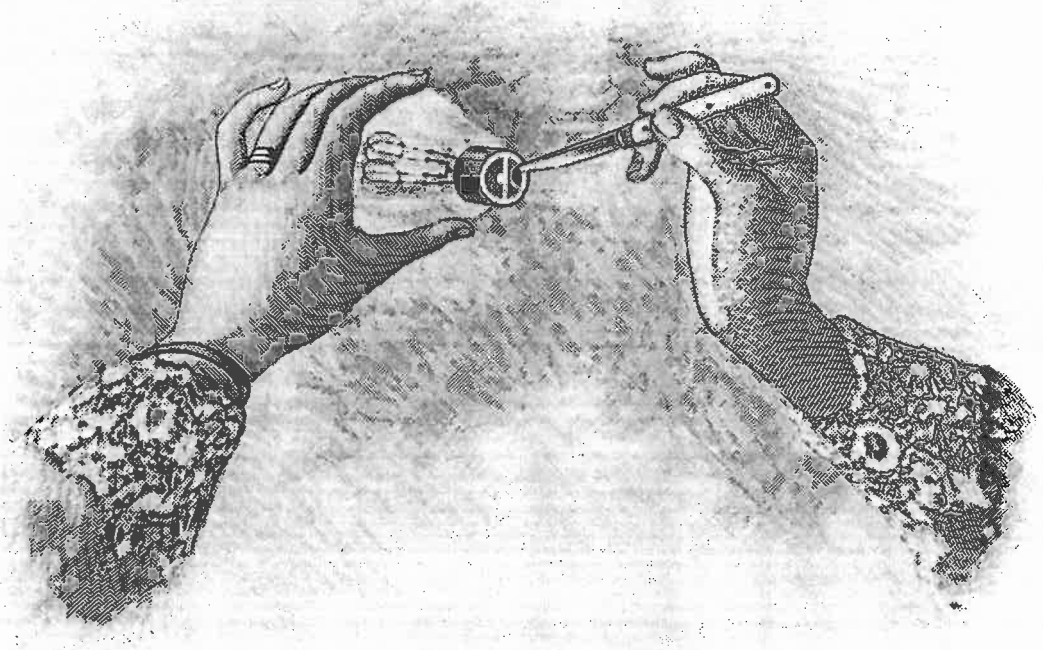


Fig. 123a.

These "Bi-life" Lamps are made in all the usual Voltages and Candle-powers.

PRICES OF "BI-LIFE" LAMPS.

Candle-power.	Limits of Voltage.	Price.	
		s.	*d.*
16	100 to 110	2	3
8	100 „ 110	2	3
16	50 „ 55	2	3
8	50 „ 55	2	3

SWITCH LAMPS.

THIS is a convenient device where a variation of Candle-Power is required, and will be found very useful for Sick Rooms, Night Lights, &c.

This Lamp contains Two Filaments which can be—

1st. Used separately.

2nd. Substituted one for the other as the active Filament.

3rd. Used in series.

A Lamp containing two Filaments of different Candle-Power, may be regulated by moving the Engaging Bayonet Slot Pin backwards or forwards. The light is raised or lowered at will, the Filaments being connected separately, together or in series.

Ordinary Single Filament Lamps, fitted with these Caps, can be used in any No. 14 Holder as a Key Switch.

Thus a Lamp made with two Filaments of 8 C.P. and 16 C.P. can be regulated according to the position of the bar to be either an 8 C.P. Lamp, a 16 C.P. Lamp, or a 24 C.P. Lamp. Similarly, a Lamp with two 8 C.P. Filaments can be regulated to be either 8, 16, or 2½ C.P. This last variation is effected by joining the two Filaments in series with each other.

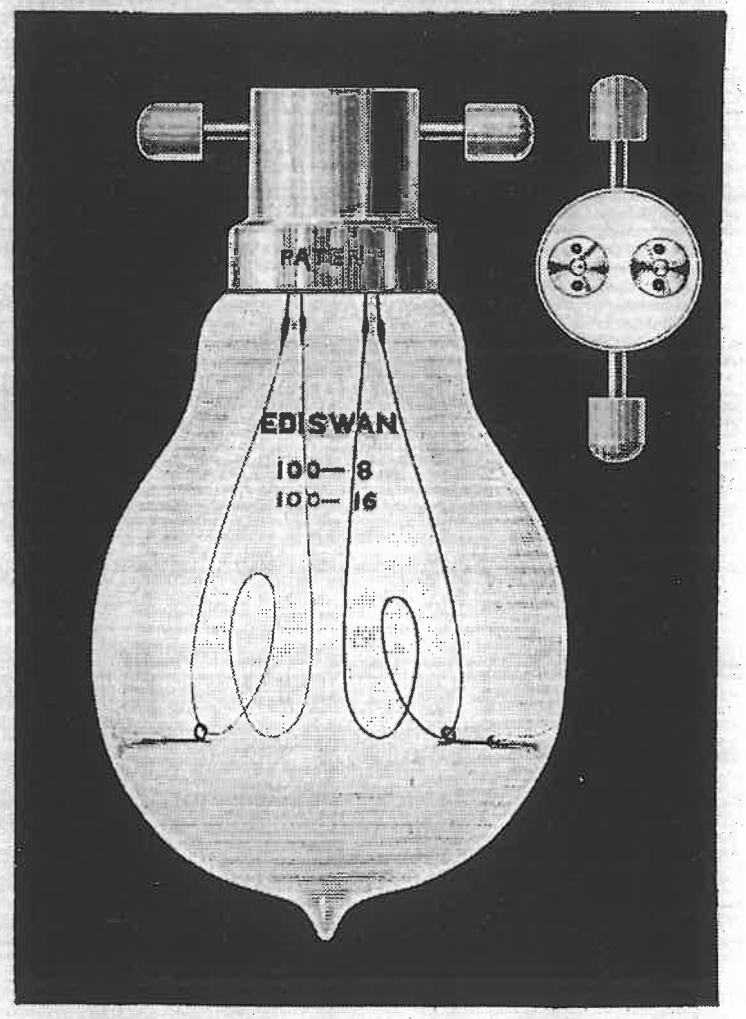


Fig. 124.

PRICE 5/-

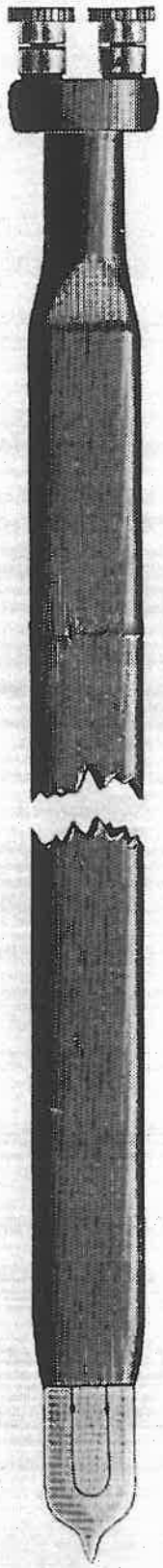


Fig. 125.

CELL VIEWING LAMPS.

THIS Lamp has been specially designed to insert between Accumulator Plates in order to ascertain their condition. It consists of a flat Lamp about $\frac{1}{4}$ in. thick, mounted upon the end of an Ebonite Holder about 18 ins. long.

The connecting wires are attached to the two small binding screws shown upon the upper end.

1 C.P. ... 3 to 8 Volts ... Mounted.

PRICE, 7/6.

COLOURED AND VARIEGATED BULBS.

THE following is a list of the EXTRA prices charged for making Lamps described in the Catalogue, in the colours here specified. Special quotations will be given for colours not mentioned.

C.P. and Voltage same as supplied with Lamps on page 42.

DESCRIPTION OF COLOUR.	PRICE.
Dark Ruby (extra thick, for photographic purposes)	10/- per Lamp extra.
Ruby, Iced	7/6
Ruby	1/3 „ extra.
Pale Pink	1/- per Lamp extra.
Dark Pink	
Sage Green	
Peacock Green	
Dark Green	
Ultramarine Blue	
Azure Blue	
Peacock Blue	
Pale Amber	
Dark Amber	
Smoked Amber	
Straw Opalescent	
Turquoise...	

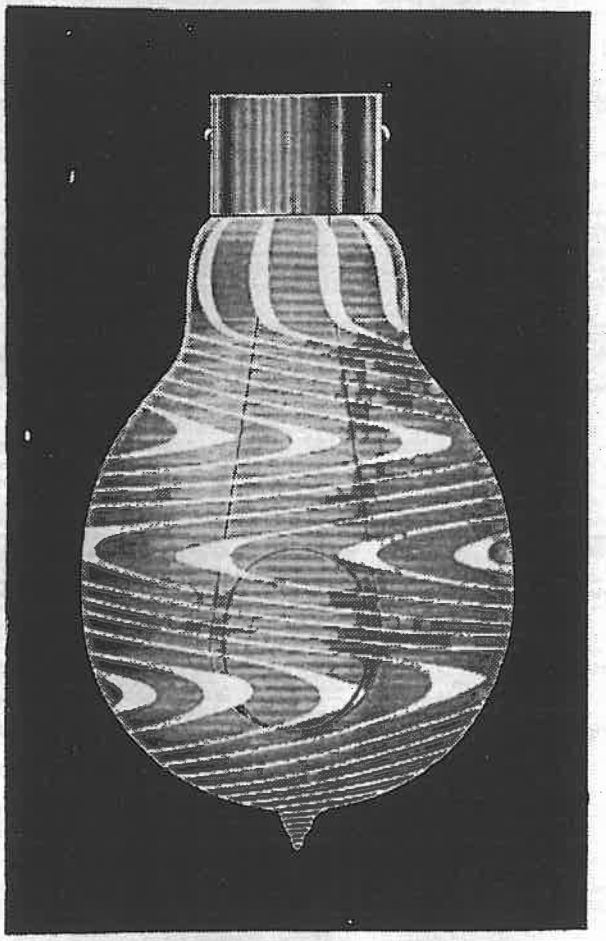
Any of the above Diamond Marked and Circular Ribbed Bulbs, 6d. per Lamp extra.

COLOURED AND VARIEGATED BULBS.

C.P. and Voltage same as supplied with No. 1 and No. 2 Bulbs, vide pages 30 and 31.

Description of Colour.	Price.
Transparent Opal	1/6 per Lamp extra.
Dead Opal	
Lavender Opal	
Gold Opal	
Green Opal	
Cream Opal	
Azure Blue Opal	
Orange Opal	2/- per Lamp extra.
Canary Yellow	
Terra-Cotta	
Opal, Striped with Ruby	2/6 per Lamp extra.
Opal, Striped with Blue	
Opal, Striped with Green	
Flint, Striped with Opal	
Flint, Circular, Striped with Opal ...	
Flint, Variegated, Striped with Opal ...	
Lamps, Varnished in Colours	3d. per Lamp extra.
Lamps, Silvered ... ... from	1/3 ,, ,,

COLOURED AND VARIEGATED BULBS.



Flint Variegated. Striped Opal.

Fig. 126.

SMALL ROUND AND FLAT BULB LAMPS.

FAIRY Lamps referred to in Section 2 page 65, are largely used with Small Portable Primary and Secondary Batteries for Running Night Lights, Watch Lights, etc., but other patterns are sometimes asked for, and can be made to order.

The following are a few special design Lamps:—

Fig. No.	Candle-power.	Limits of Voltage.	Price. s.	Price. d.
*64	1	3 to 8 Volts.	3	9
65	1	3 „ 8 „	3	9
66	1	3 „ 8 „	3	9
127	2½	3 „ 8 „	3	0
127	2½	5 „ 8 „	3	0
67	2½	5 „ 8 „	3	0

*With or without Platinum Loop at S.P.

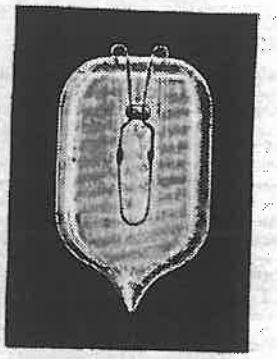


Fig. 64.

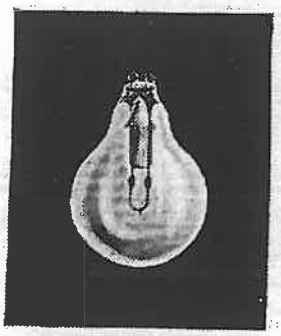


Fig. 65.

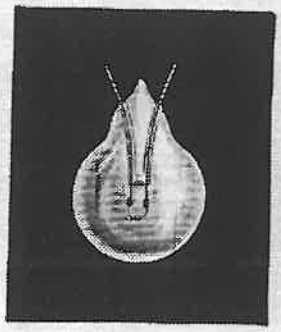


Fig. 66.

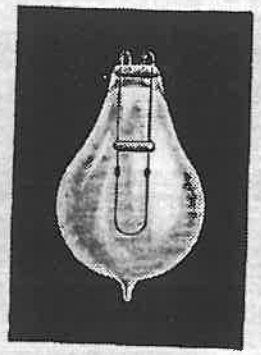


Fig. 127.

Fig. 67.

EXTRA SPECIAL LAMPS, not included in any other Section.

SPECIAL Lamps of any practicable pattern, or Lamps for any specific purpose, can be designed if the requirements are made known. The prices will, of course, vary according to the pattern desired and the demand.

The following illustrations represent a few of the Lamps which have already been supplied.

Particulars of the Voltage, Candle-powers and Prices, appear with the Lamps in the same paragraph, and may be traced by means of the number which is placed under each illustration.

Customers in choosing any of the following Lamps should adopt, if possible, the Voltage and Candle-powers given for the particular Lamps they choose, as these will be the most suitable for the special form of Lamp, and it will be easily understood that the range of Voltage, etc., must necessarily be very limited.

When ordering Lamps, with the help of the illustrations and descriptions, care should be taken to first quote the number of the Lamps, and then follow with instructions concerning Voltage, Candle-power, Terminals, whether the Bulb is to be Coloured, Silvered or Obscured, etc.

PROJECTED FILAMENT AND FLAT LAMPS.

IN these Lamps it will be seen that the Bulb is made with a flat or oval side, or the filament is projected forward in the Bulb, and, in some cases, both methods are adopted.

Some of these Flat Lamps and Lamps with Projected Filaments are made to the design of MR. FREDERICK GEO. J. ADAMS, of the Royal Naval College, Greenwich, for use in his Patent Safety Lamp.

Lamp No. 134 used for Illumination from the Ceiling to imitate a small Wenham Gas Lamp and also for Optical Lanterns.

FIG. NO.	CANDLE-POWER.	LIMITS OF VOLTAGE.	PRICE.	
			s.	*d.*
128	1	3 to 8 Volts.	6	0
	2½	5 „ 8 „	6	0
129	5	15 „ 25 „	9	0
130	5	15 „ 25 „	7	6
131	32	65 „	12	0
132	50	65 „	12	0
133	16	40 to 60 „	7	6
134	32	80 „ 105 „	12	6

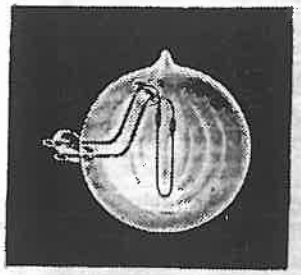


Fig. 128.

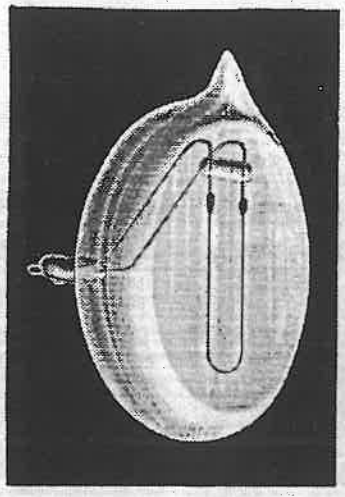


Fig. 129.

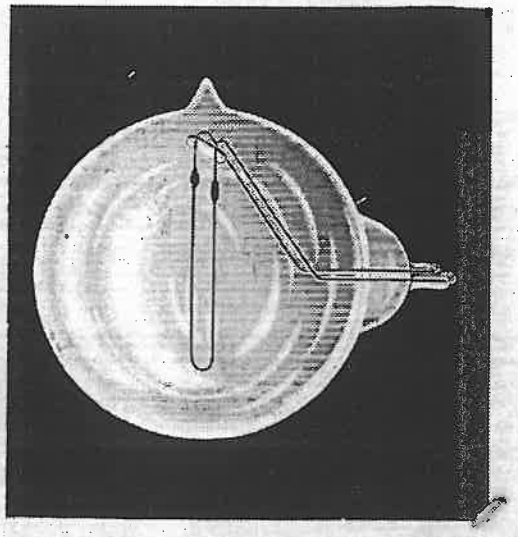


Fig. 130.

PROJECTED FILAMENT AND FLAT LAMPS.

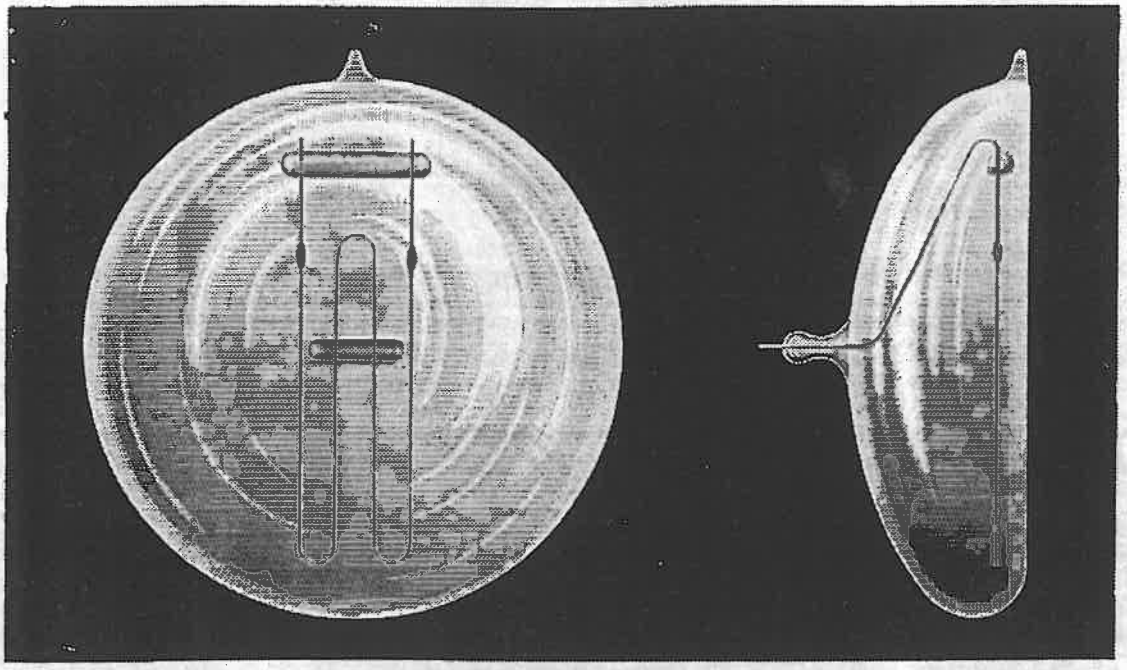


Fig. 131.

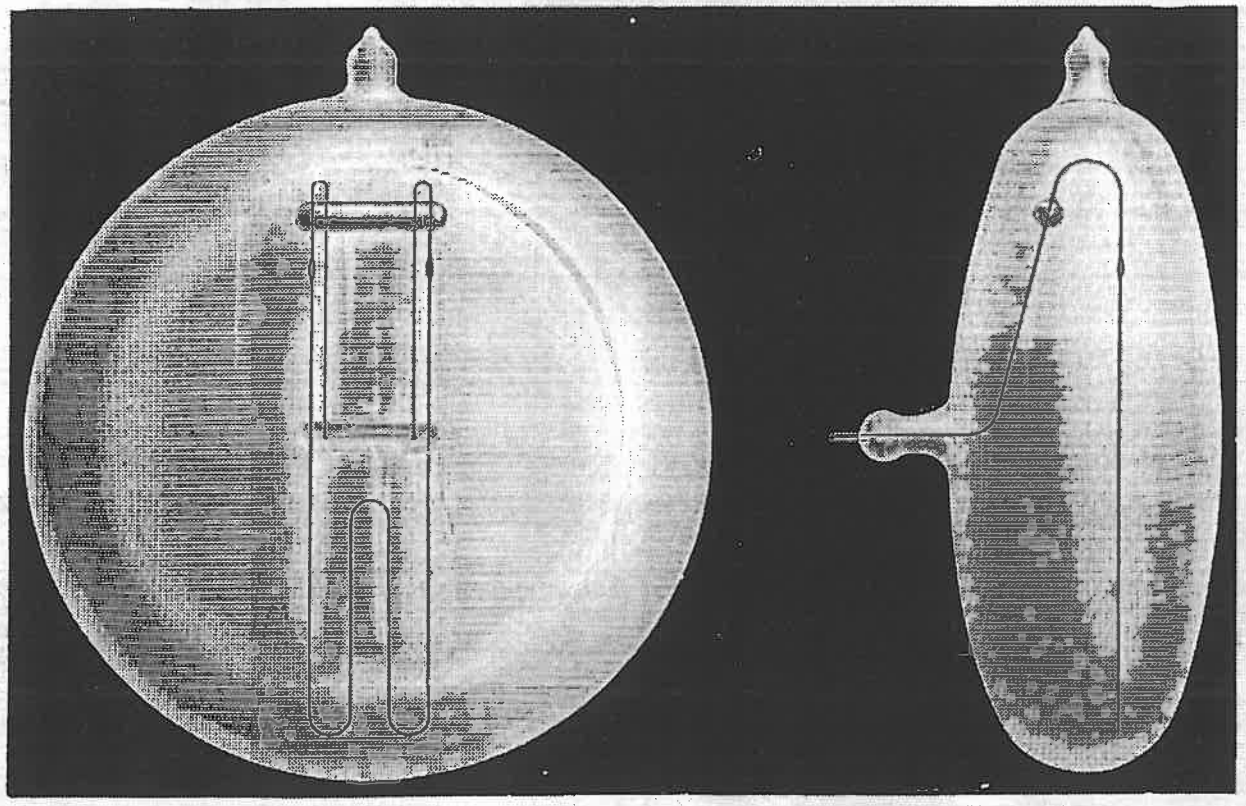


Fig. 132.

PROJECTED FILAMENT AND FLAT LAMPS.

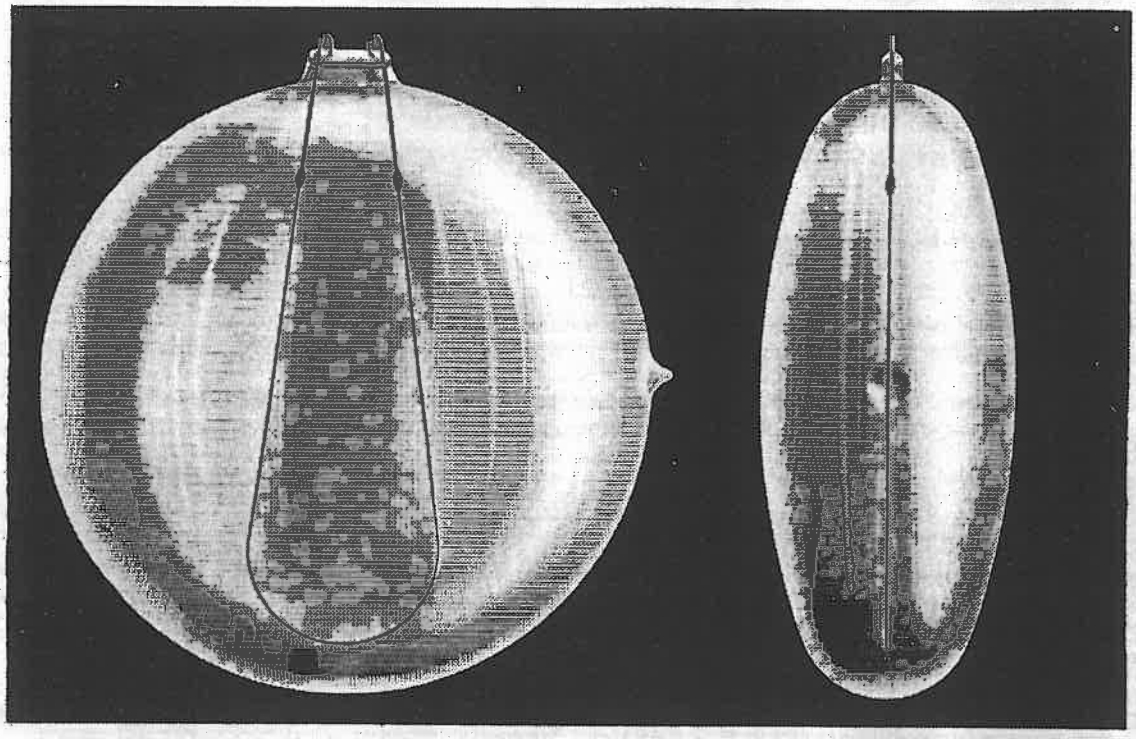


Fig. 133.

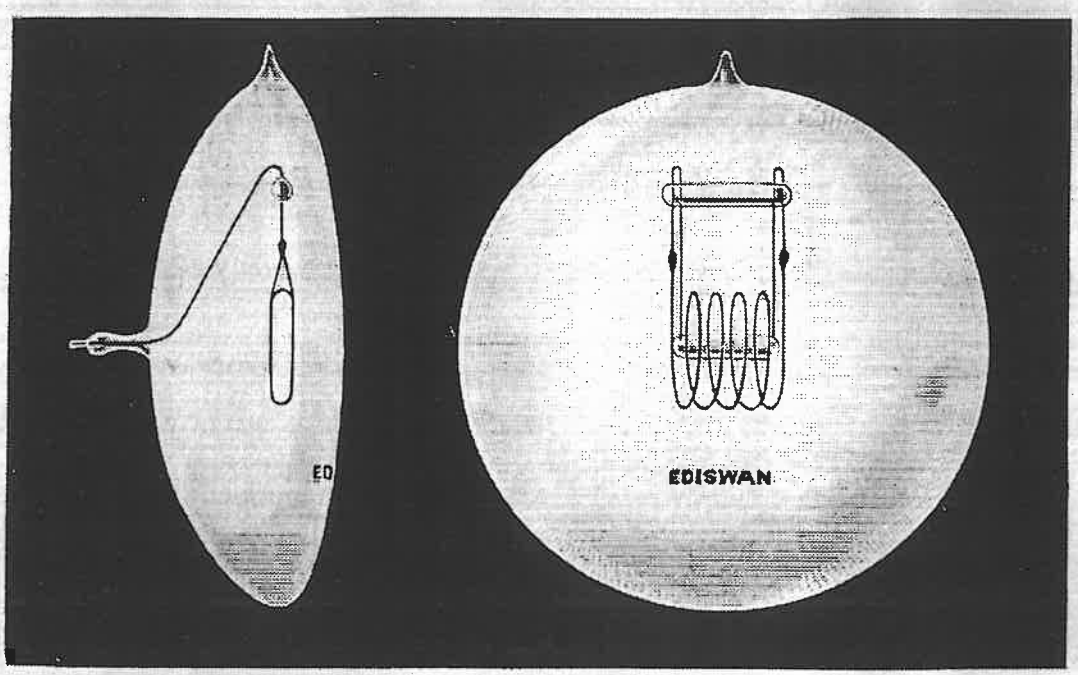


Fig. 134.

SURGICAL LAMPS, &c.

THESE Lamps are specially used for medical examination of the throat, ear and other interior cavities of the human body, and have been found very useful for illumination during surgical operations. They can be mounted in Special Holders to order, and are usually run from small Secondary Batteries, a clear steady white light being thus obtained in any position.

Fig. 57.

Fig. 58.

Figure No. 57, 1 C.P., 2 to 3 Volts, PRICE, 5/-.

Figure No. 58, 1 C.P., 2 „ 4 Volts, PRICE, 5/-.

Figure No. 60, 1 C.P., 3 „ 8 Volts, PRICE, 3/9.

Figure No. 61, 1 C.P., 3 „ 8 Volts, PRICE, 5/-.

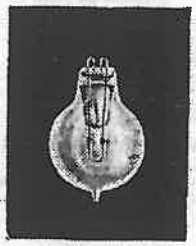


Fig. 60.

Fig. 61.

Specially made for Gun Night-Sights, to stand great shocks.

Figure No. 59, 1 C.P., 3 to 8 Volts, PRICE, 3/9.

Figure No. 135, 1 C.P., 3 „ 8 Volts, PRICE, 3/9.

Fig. 59.

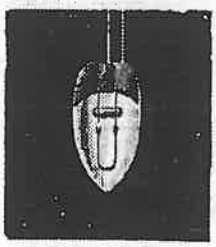


Fig. 135.

Used for the Internal Examinations of small bore Guns.

Figure No. 63, 1 C.P., 3 to 8 Volts, PRICE, 5/3.

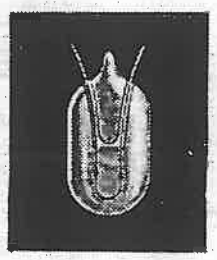


Fig. 63.

PLAIN BULBS, SPECIAL SHAPES.

Fig. 143.

Used for the internal examination of large bore guns.

100 C.P. ... 80 Volts. ... PRICE 9/-

Fig. 142.

Made with the sealing point at the top of the Bulb, in order to obtain a perfectly clear light from the bottom.

8 C.P. ... 80 Volts. ... PRICE 4/3

PHOTOGRAPHIC LAMP.

THIS Lamp is made specially for Messrs. Adamson Bros.' Patent Incandescent system of Electric Light for Photography, and is supplied only through that firm, who keep a record of the requirements of each installation fitted with their patent apparatus. Messrs. Adamson Bros. state that this Lamp has a life of over 10,000 photographic exposures.

Orders for this Lamp should be addressed to Messrs. Adamson Bros., 18a, Eldon Street, London, E.C.

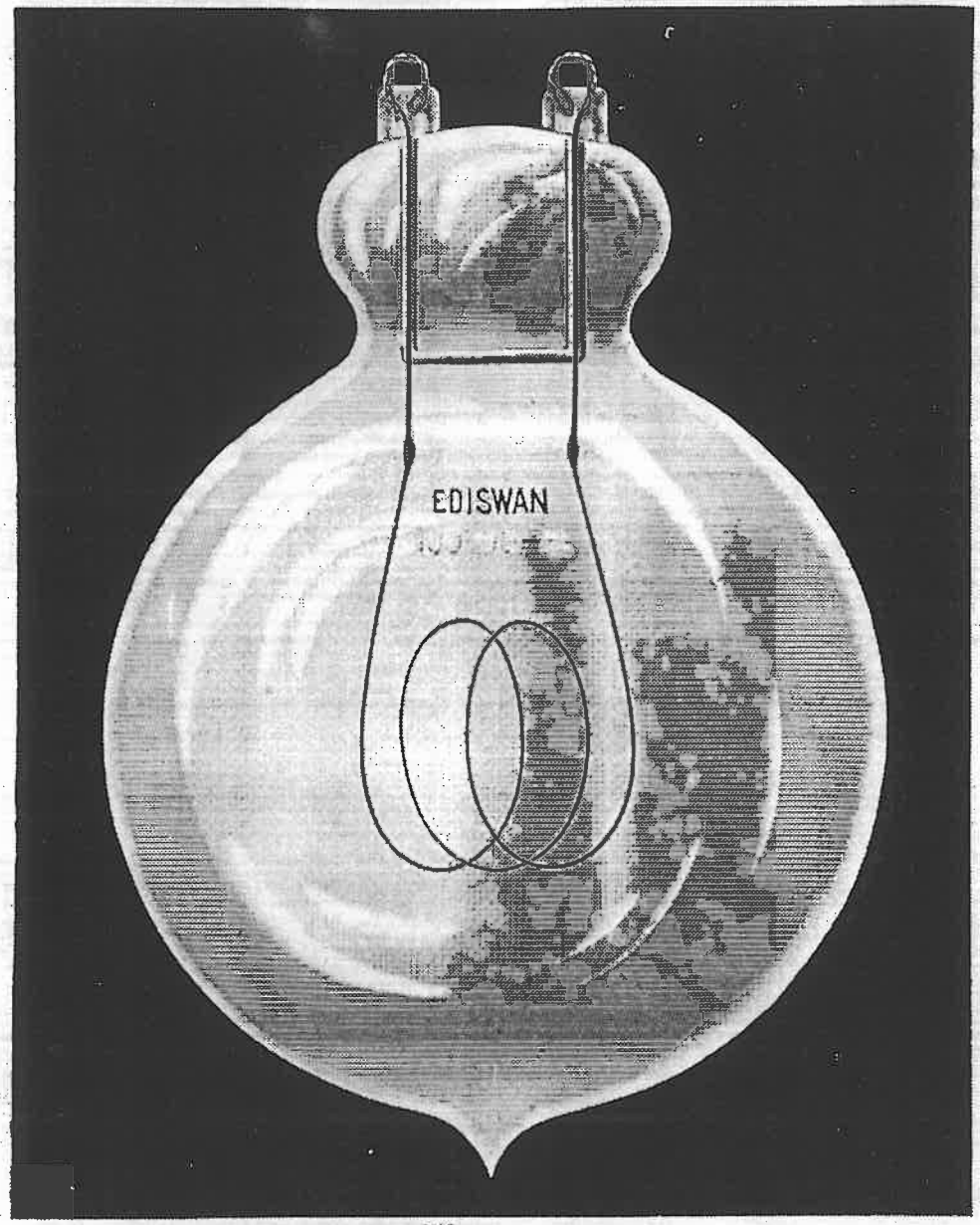


Fig. 144.

Fig. 68.

OPHTHALMIC LAMPS.

Surgical Lamp used for Ophthalmic and other purposes.

Fig. No.	Candle-power.	Limits of Voltage.	Price.
			s. *d.*
68	2½	8 to 12	7 6

200 OHM RESISTANCE LAMP.

Used in connection with Telegraphic instruments.

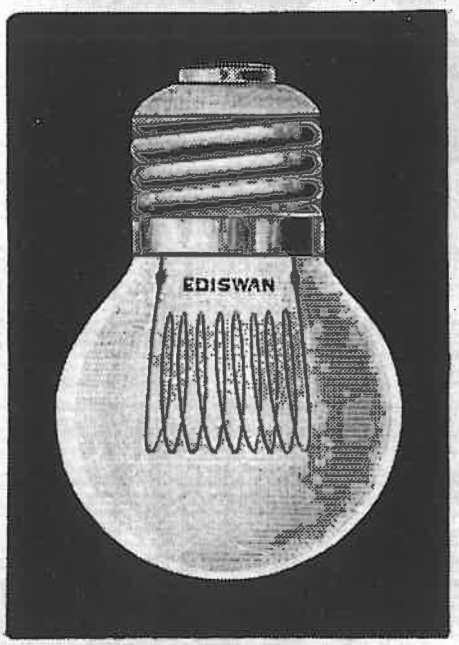


Fig. 145.

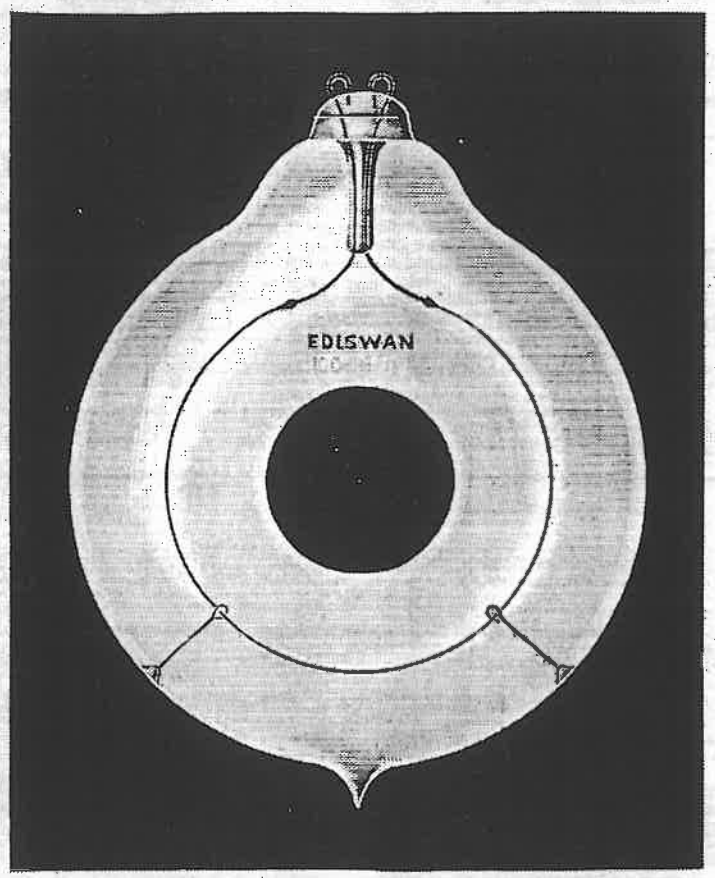


Fig. 146.

Prices on application.

SAFETY AND SPECIAL CONICAL LAMPS.

THIS Lamp is used in the neighbourhood of dangerous explosives, the Bulb being immersed in water with the Terminal end above the surface.

In the event of the Lamp cracking, water immediately fills the Bulb and prevents ignition of any prevalent explosive gas.

16 C.P., 40 to 105 Volts.

PRICE ... ... 6/–.

Fig. 147.
Half actual size.

Largely used for decorative purposes, and frequently supplied with Coloured Bulbs.

8, 16 and 32 Candle-power.

80 to 110 Volts.

PRICE. Clear ... ... 10/–.

„ Any Ordinary Colour ... 12/6.

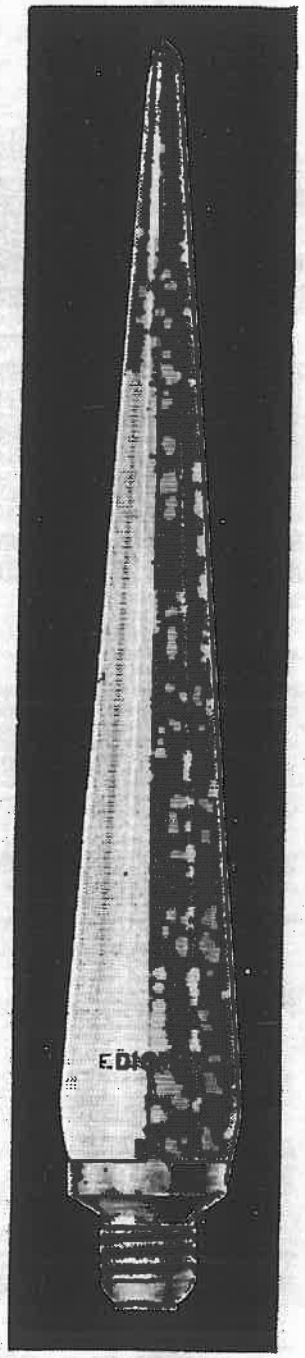


Fig. 148.
Half full size.

HALO LAMP.

Specially manufactured to represent a halo for theatrical work.

8 or 16 C.P. **100 to 110 Volts.**

PRICES on application.

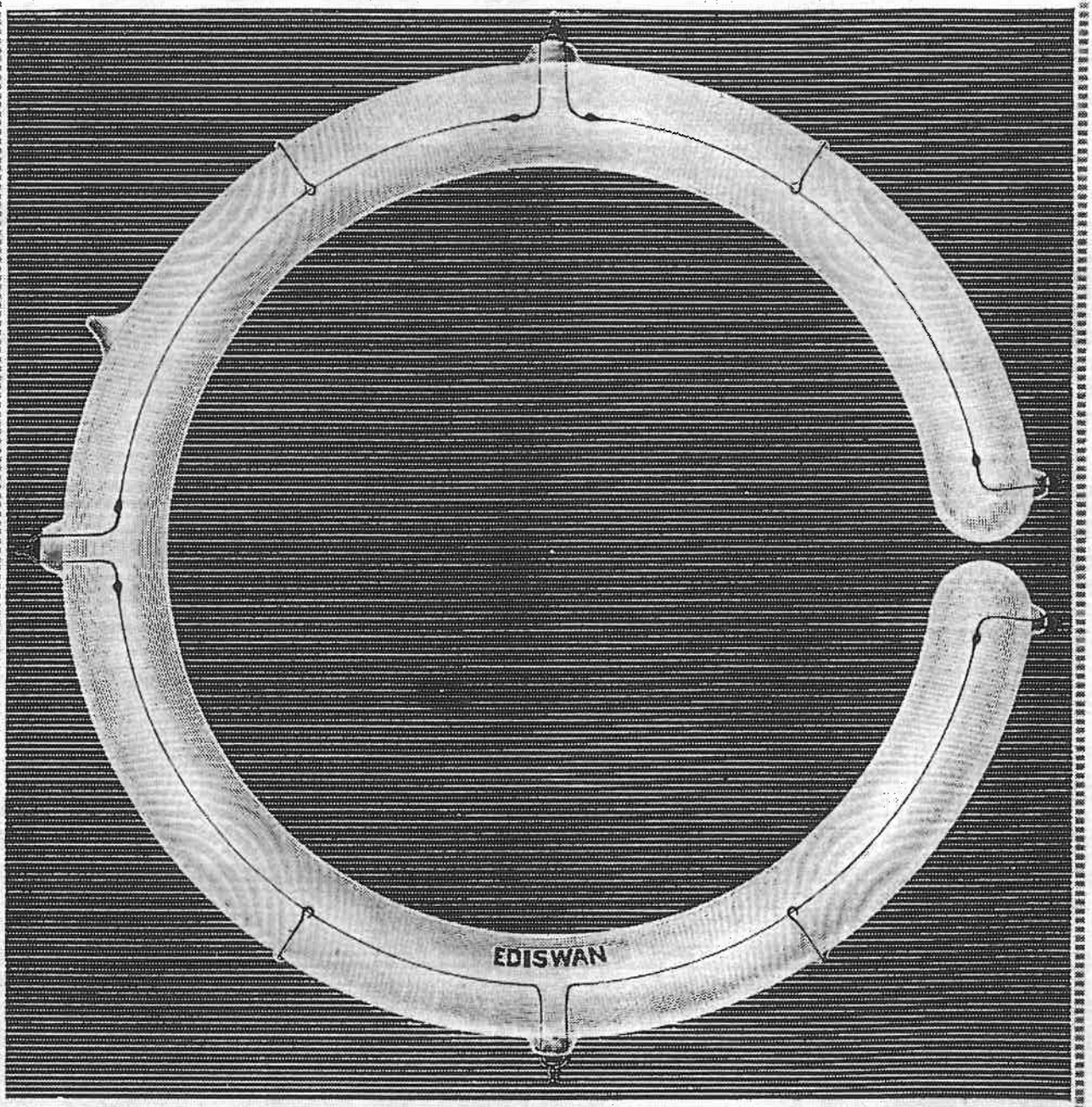


Fig. 149.

SPECIAL LAMPS FOR CHEMICAL FACTORIES.

THIS Lamp was designed for use in Chemical Factories where acid fumes are liable to attack a metal Holder.

To obviate this an ordinary No. 1 Spring Holder is used, and the Lamp hooked on in the usual way.

The Cup is then filled with some heavy insulating oil, which protects the metal portions of the Holder from being attacked by acid.

8 and 16 C.P. ... 40 to 110 Volts.

PRICE ... ... 5/9.

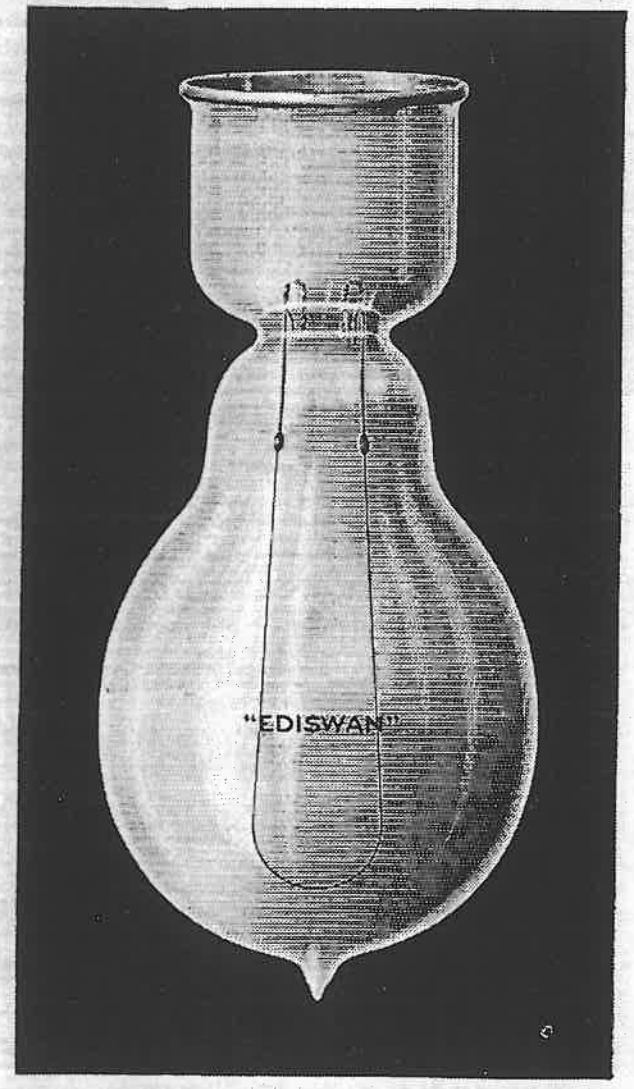


Fig. 150. *Full size.*

OBSCURED LAMPS.

SPECIAL Designs are Obscured upon the Bulb to suit Customers' requirements. We show five illustrations of representative types.

PRICE, Ordinary, Figs. 154 and 155 ... 1d. extra.

PRICE, Special, Figs. 151 to 153 ... ... on application.

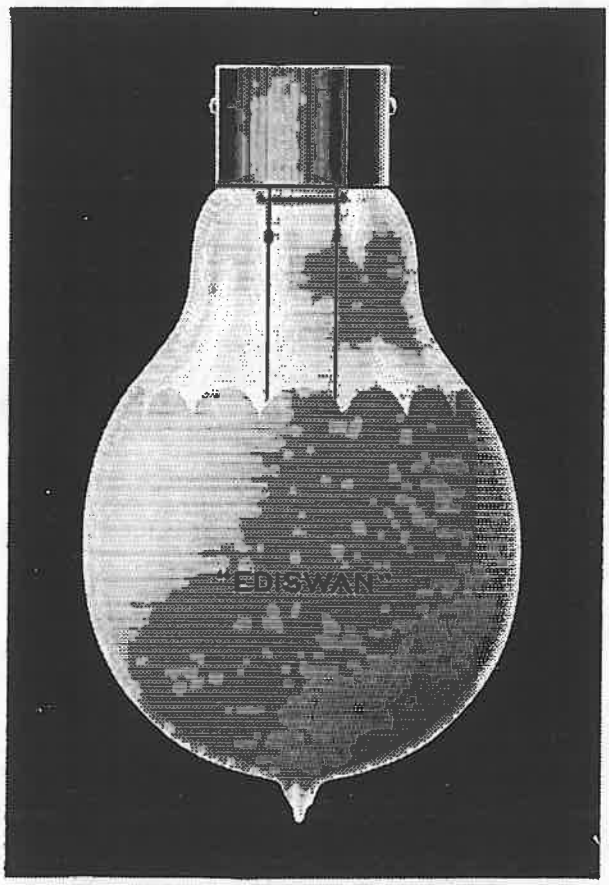


Fig. 151.

OBSCURED LAMPS.

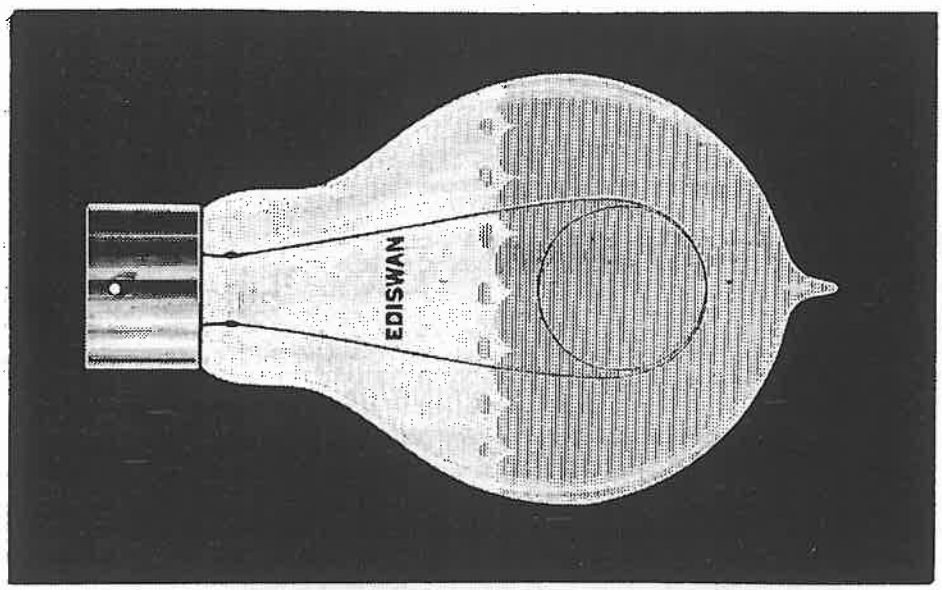


Fig. 153.

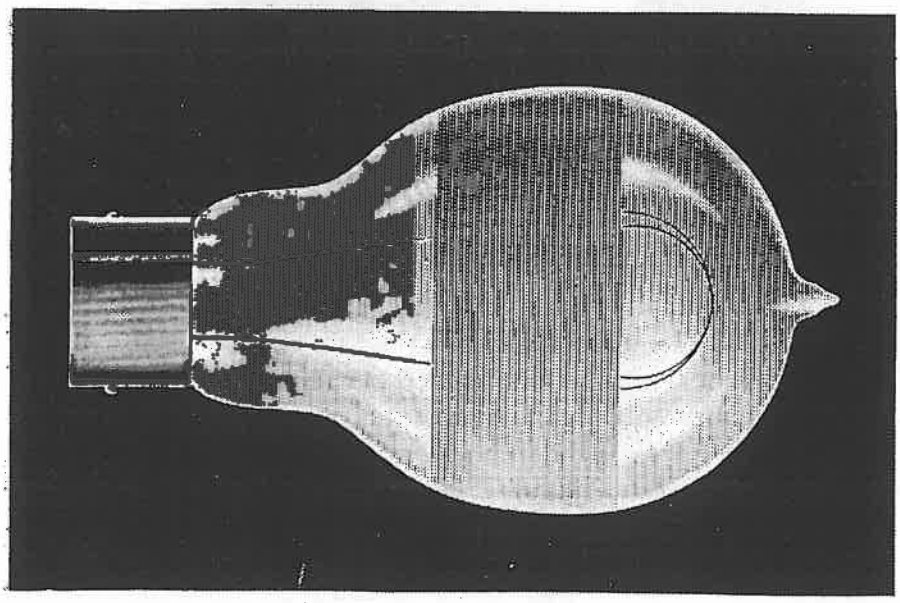


Fig. 152.

OBSCURED LAMPS

SEC. 2.

Class VII.

Obscured Lamps.

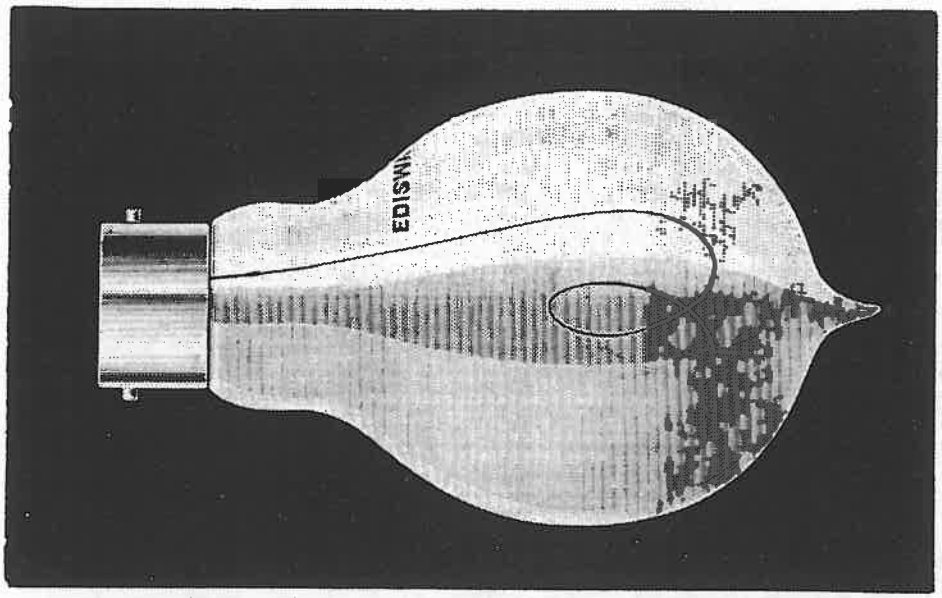


Fig. 155.

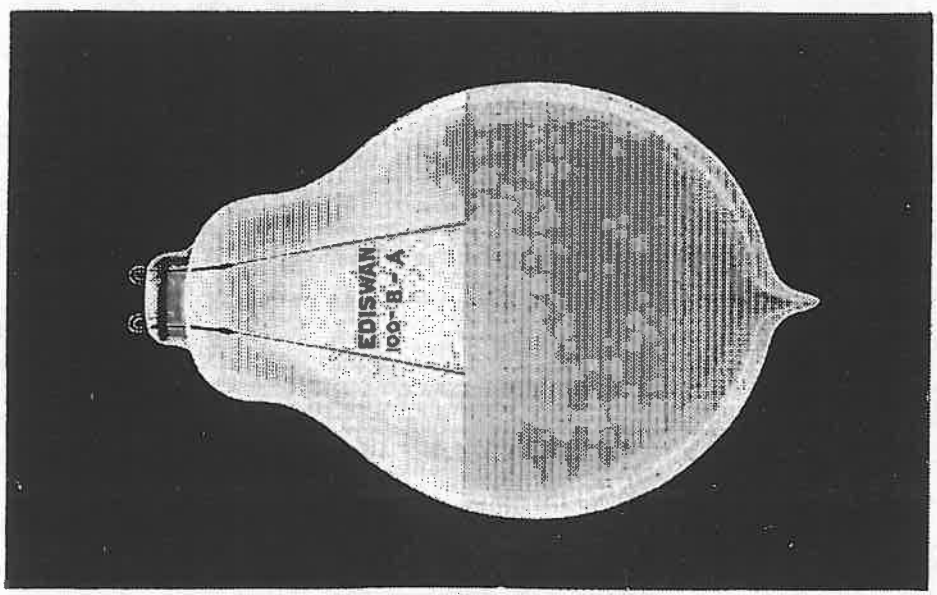
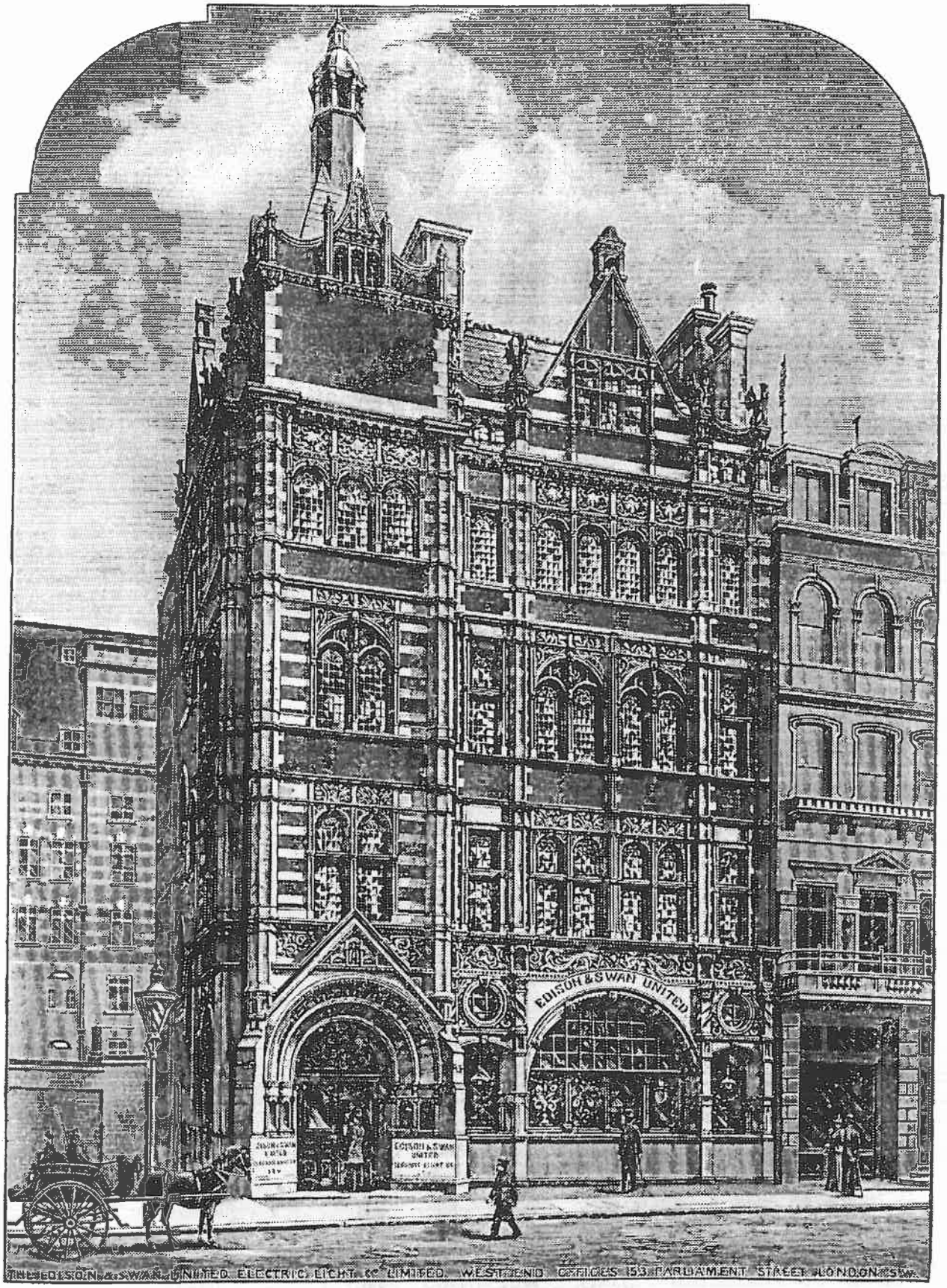


Fig. 154.



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