Catalogue of Edison-Lalande batteries, battery motors, measuring instruments, medical apparatus, etc.

Contributors

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CATALOGUE

—— OF ——

EDISON-LALANDE BATTERIES,

BATTERY MOTORS,

MEASURING INSTRUMENTS,

MEDICAL APPARATUS, ETC.,

MANUFACTURED BY

EDISON MANUFACTURING COMPANY,

110 EAST 23D STREET,

NEW YORK.

FOR SALE BY

GENERAL DIRECTIONS

FOR

CHARGING.

Where it is practicable, always make the solution in some large earthenware vessel, and allow it to get quite cold before setting up the battery. Remove any scum from the surface of the solution before pouring on the oil. Stir the solution frequently while the caustic is dissolving.

It is most important that the oxide plates should be entirely submerged in the Caustic Potash solution, so that the top edge of the oxide plate should be at least one inch below the layer of oil.

It is also of vital importance that the oil should not be omitted. When oil is not used, creeping salts form, and the life of the battery is reduced fully two-thirds.

Before immersing the plates in the solution, put them in water until they are thoroughly wet. This prevents any oil adhering to them, as they pass through. If this is not done, a film of oil covers the plates, and it is some time before they will work to their full capacity.

Complete directions for charging are sent out with every cell.

We wish to call particular attention to the fact that when the zinc is consumed, it is also necessary to renew oxide plates and solution.

THE PRINCIPAL POINTS

IN FAVOR OF THE

Edison-Lalande Cells.

1st. High and constant available E. M. F.

2nd. No local action, and consequent loss of material, while the cell is idle—the chemical action in cell is less than one per cent. per month.

3d. Extremely low internal resistance.

4th. Cheap materials easily obtained.

5th. No attention or inspection required until all the energy of its elements is exhausted.

6th. Convenience of form and freedom from noxious fumes or chemical deposits.

7th. No polarization.

8th. The EDISON-LALANDE Battery is now made in seven different types, each one of which is especially designed for the kind of work named.

DESCRIPTION AND CHEMICAL ACTION OF CELL.

The elements employed in the EDISON-LALANDE cell are zinc, from which the negative current is obtained, and black oxide of copper (Cu. O) the positive current. The exciting liquid is simply a solution of caustic potash. The oxide of copper is obtained by the process of roasting copper turnings; the oxide is then ground into a fine powder and compressed into solid blocks, from which plates of a suitable size for the difierent cells are cut. These plates are suspended from the cover of the containing vessel, a porcelain jar, by means of a light framework of copper, one end of this framework carrying the binding post for the positive pole of the battery. This framework is fastened rigidly to the cover. On each side of the copper oxide element in the larger type cells (but only on one side in the smaller types), is suspended a rolled zinc plate. These zinc plates are fastened by a bolt to a knob on the cover. This prevents any movement in the relative position of the elements, and does away with the necessity of using vulcanite separators to prevent any short circuits occurring in solution. The zincs are amalgamated, and, as in most batteries, the zinc is attacked more vigorously near the top than at the lower part of the plate, the zincs for this cell are made slightly tapering, the thick part being uppermost.

The exciting liquid employed in the battery consists, in all types, of a 25 per cent. solution of caustic potash in water, or in other words, of a solution of one pound of caustic potash, in three pounds of water. When the circuit is closed and the cell is put in action, the water is decomposed, the oxygen forming with the zinc, oxide of zinc, which, in turn, combines with the potash to form an exceedingly soluble double salt of zinc and potash, which dissolves as rapidly as it is formed; the hydrogen liberated by the decomposition of the water, reduces the copper oxide to metallic copper. A layer of heavy paraffine oil $\frac{5}{8}$ inch deep is then added to keep out the air and prevent creeping. As for inspection or supervision, so fruitful a source of trouble and expense with other batteries, this cell requires absolutely none. Polarization and local action are, as we have already intimated, entirely absent, the zincs never require cleaning, the solution does not crystallize or creep, and there is no porous pot to crack or lead cap to be converted into white oxide. No fumes or other noxious chemical products are given off by the battery at any time during its existence; in fact, its presence could never be detected by the sense of smell, even in a ladies boudoir, and as for convenience of form and dimensions, what could be better than a cylindrical porcelain jar containing the two elements suspended from the cover?

A SIMPLER FORM OF CELL IT WOULD BE IMPOSSIBLE TO IMAGINE.

Table of comparisons between Edison-Lalande and other types of battery on the market for purposes of driving small electric motors or for moderate general delivery of power.

TYPE OF CELL.	Mean Working E. M. F. Volts.	Average Internal Resist'ce. Ohms.	Maxim'm Current Amperes	Capacity in Ampere. Hours.	List Price.	Power Valuat'n. $\frac{e2}{r}$	Econo'ic Power Valuat'n. $\frac{e2}{pr}$	Maxim'm Continu's Current Amperes.
Fuller Bichromate	1.8	0.40	4.50	68	$1.00	8.1	8.1	
Western Union Carbon Bichromate Type . . .	1.8	0.40	4.50	5	1.25	8.1	6.48	
Partz Motor Cell	1.83	0.51	3.58	65	4.50	6.57	1.458	
Hussey Eclipse	1.4	0.8	1.75	45	2.50	2.45	0.98	
Leclanché	1.5to 0.5	0.5	3.0		1.00	1.0	1.0	
Gravity Daniell, Western Union Type, Local . .	1.0	0.5	2.0		0.90	2.0	2.22	
Edison-Lalande, Type B, Portable Air-tight . .	0.667	0.50	1.334	15	1.50	0.89	0.59	1.0
" " " J, Annunciator . . .	0.667	0.180	3.705	50	1.30	2.47	1.90	2.0
" " " X, Special Telephone . .	1.333	0.50	2.666	40	2.50	3.56	1.42	1.0
" " " Q, Small Motor . . .	0.667	0.070	9.528	150	2.00	6.35	3.18	3.0
" " " R, West. Union Telegraph .	0.667	0.043	15.511	300	2.70	10.33	3.83	4.0
" " " S, Phonograph Motor . .	0.667	0.025	26.680	300	2.85	17.78	6.24	6.0
" " " W, Large Motor Model . .	0.667	0.020	33.350	600	4.85	22.22	4.58	7.0

The third column gives the current that the cells will deliver when placed on short circuit. The last column gives the limiting currents that it is usually advisable to take from the cells when worked continuously.

In order to point out the advantages and capabilities possessed by the different types of the Edison-Lalande cell, which we manufacture, the foregoing table has been prepared by Mr. A. E. Kennelly, of the Edison Laboratory, comparing these and other well-known batteries on the market. It should be remarked, however, that most of these latter could not be practically employed for any motor work. The local action in the chromic acid type and the polarization in the Leclanche, preclude their economic application for even very moderate deliveries of electric power. On the other hand, the Edison-Lalande cell is free from objection on the score of either polarization or local action, and can be conveniently applied to sewing machine motors, fan motors, electric cauteries, small electric lamps and other purposes calling for moderate supplies of electrical power, in addition to the needs of telegraphy, telephony and electric bells or signals.

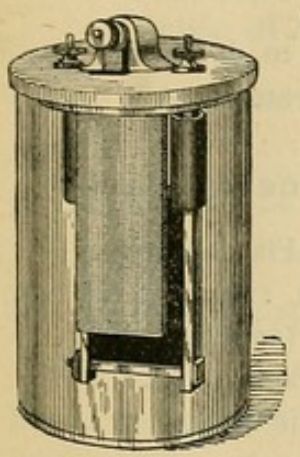
A careful scrutiny of this table of the internal resistances, (second column), and maximum safe continuous discharges (last column), of the various types of Edison-Lalande cells, is most essential when selecting batteries for supplying heavy current for motor work, etc., as in such cases, the rate of discharge is the first thing to be considered, and is of far more importance than the capacity of the cell. For instance: our type "C" cell has a capacity of 50 ampere-hours. It would not, however, be wise to employ a number of this type cell for operating a motor requiring 3 amperes to drive it, as the maximum safe continuous discharge of this cell is found, by the table, to be only 2 amperes (see last column). It would, therefore, be advisable to use type "G" cell or any of the larger models for this work.

These remarks do not apply to cells used for cautery work, which deliver upwards of 30 amperes on short circuit, as in this case the current is used for only a few minutes at a time, and the battery can be used almost up to its maximum current discharge (as shown in the third column), without deterioration.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

Type "J" Cell.

ANNUNCIATOR MODEL.



Size over all, 3¾ in. x 7 in.

CAPACITY, 50 AMPERE-HOURS.

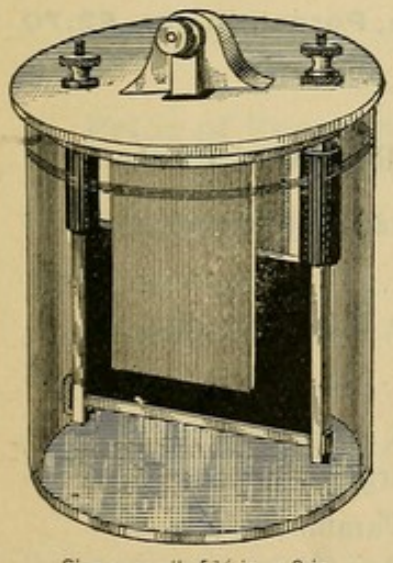
Price complete, Porcelain Jars, - $1.30

Price of Renewal Parts.

Copper Oxide Plate (capacity, 1 charge)	$0.12
Zinc Plate (capacity, 1 charge)	.08
Can containing 2 sticks Caustic Potash (1 charge)	.12
Bottle Heavy Paraffine Oil, sufficient for 1 charge	.05

Type "Q" Cell.

SMALL TELEGRAPH AND MOTOR MODEL.



Size over all, 5¾ in. x 8 in.

CAPACITY, 150 AMPERE-HOURS.

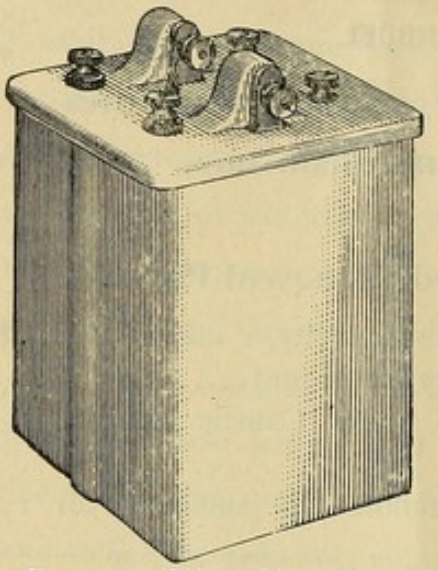
Price complete, Porcelain Jars, - $2.00

Price of Renewal Parts.

2 Zinc Plates (capacity, 1 charge), 12c. each	$0.24
1 Copper Oxide Plate (capacity, 1 charge)	.25
Can containing 2 sticks Caustic Potash (1 charge)	.17
Bottle Heavy Paraffine Oil, sufficient for 1 charge	.05

Type "X" Cell.

SPECIAL TELEPHONE MODEL FOR LOCAL TRANSMITTERS.



Size over all, 4¾ in x 4¾ in. x 7¼ in.

CAPACITY, 40 AMPERE-HOURS.

Price complete, - $2.50
Including Porcelain Jar.

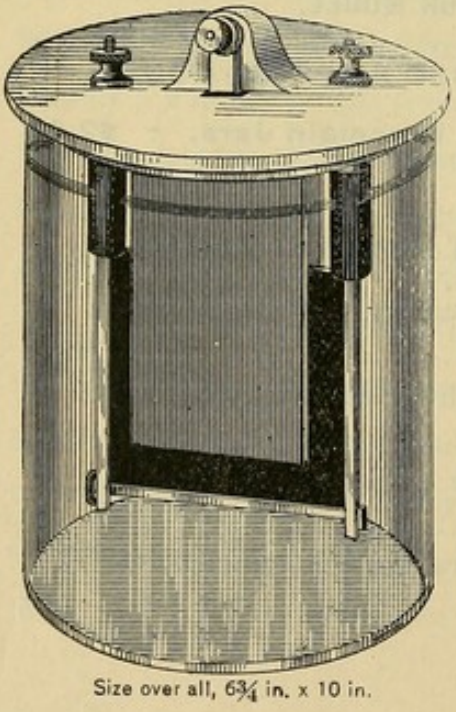
The cell is made to fit battery box under transmitter.

Price of Renewal Parts.

2 Copper Oxide Plates (capacity, 1 charge), 12c. each..	$ .24
2 Zinc Plates (capacity, 1 charge), 8c. each.....	.16
2 Bottles Caustic Potash (1 charge), 10c. each.....	.20
Bottle Heavy Paraffine Oil, sufficient for 1 charge.....	05

Type "R" Cell.

WESTERN UNION TELEGRAPH MODEL.



Size over all, 6¾ in. x 10 in.

CAPACITY, 300 AMPERE-HOURS.

Price complete, Porcelain Jar, $2.70

Price of Renewal Parts.

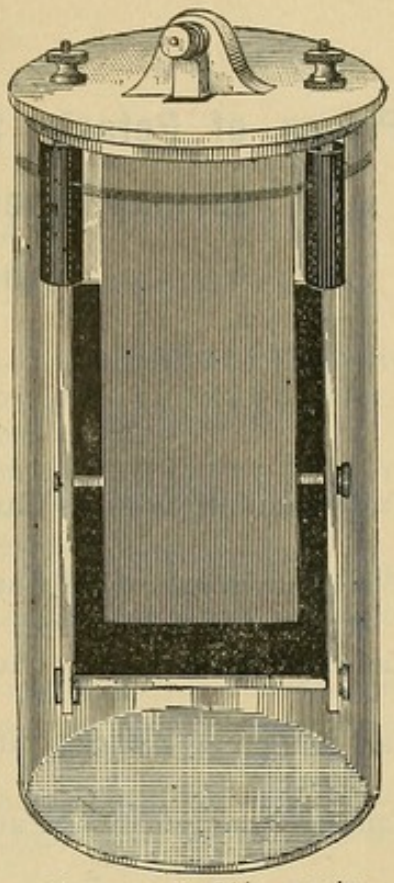
2 Zinc Plates (capacity, 1 charge), 21c. each.....	$ .42
1 Copper Oxide Plate (capacity, 1 charge)	.46
Can containing 2 sticks Caustic Potash (1 charge,).....	.28
Bottle Heavy Paraffine Oil, sufficient for 1 charge.....	.05

TYPE "S" CELL.

PHONOGRAPH MODEL.

CAPACITY, 300 AMPERE-HOURS.

Price complete, Porcelain Jar, $2.85



Size over all, 5¾ in. x 13 in.

Price of Renewal Parts.

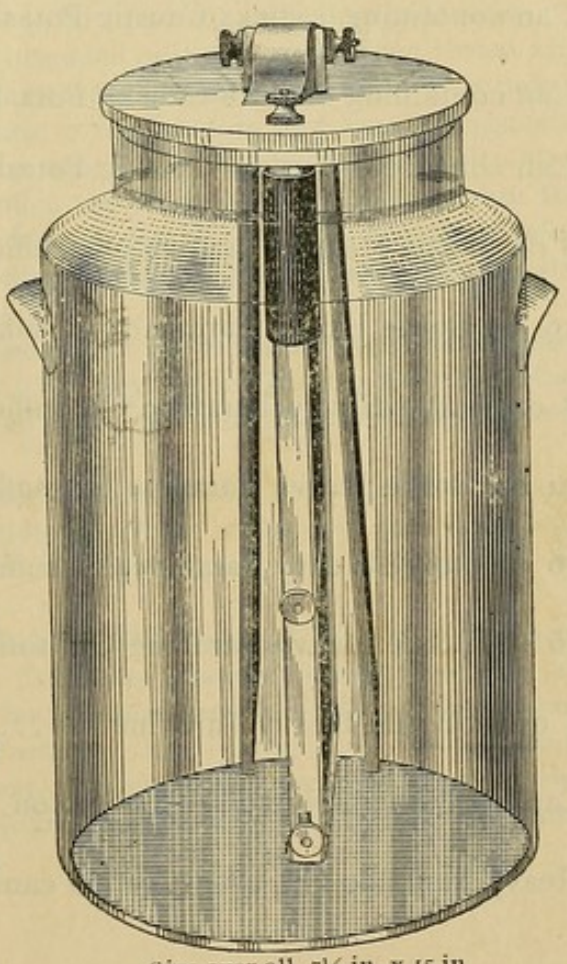
2 Zinc Plates (capacity, 1 charge), 21c. each	.42
2 Copper Oxide Plates (capacity, 1 charge), 25c. each,	.50
Can containing 2 sticks Caustic Potash (1 charge)	.28
Bottle Heavy Paraffine Oil, sufficient for 1 charge	.05

TYPE "W" CELL.

Large Motor Model.

CAPACITY, 600 AMPERE-HOURS.

Price complete, Porcelain Jars, $4.85



Size over all, 7½ in. x 15 in.

Price of Renewal Parts.

2 Zinc Plates (capacity, 1 charge), 38c. each	.76
2 Copper Oxide Plates (capacity 1 charge), 46c. each	.92
Can containing 4 sticks Caustic Potash (1 charge)	.52
Bottle Heavy Paraffine Oil, sufficient for 1 charge	.08

Prices of Potash Sticks and Heavy Paraffine Oil for various Types of Cells in Larger Quantities than Single Charges.

Can containing 4 sticks Caustic Potash, Type B (2 charges)	$0.16
Can containing 4 sticks Caustic Potash, Type J (2 charges)	.22
Can containing 8 sticks Caustic Potash, Type J (4 charges)	.40
Can containing 4 sticks Caustic Potash, Type Q (2 charges)	.32
Can containing 6 sticks Caustic Potash, Type Q (3 charges)	.48
Can containing 8 sticks Caustic Potash, Type Q (4 charges)	.60
Can containing 4 sticks Caustic Potash, Type R or S (2 charges)	.52
Can containing 8 sticks Caustic Potash, Type R or S (4 charges)	.96
Can containing 8 sticks Caustic Potash, Type W (2 charges)	.96
8 oz. Bottle Heavy Paraffine Oil, sufficient for 4 charges, Type J	.08
16 oz. Bottle Heavy Paraffine Oil, sufficient for 8 charges, Type J	12
8 oz. Bottle Heavy Paraffine Oil, sufficient for 2 charges, Type Q or S.	.08
12 oz. Bottle Heavy Paraffine Oil, sufficient for two charges, Type R	.10
16 oz. Bottle Heavy Paraffine Oil, sufficient for 4 charges, Type Q or S.	.12
16 oz. Bottle Heavy Paraffine Oil, sufficient for 2 charges, Type W	.12
1 quart Bottle Heavy Paraffine Oil	.20
Can Heavy Paraffine Oil, Half gallon	.30
Heavy Paraffine Oil, 2 or 3 gallon cans, per gallon	.50

CAUTERY BATTERIES.

The EDISON *Cautery Batteries* have been specially designed to meet the large and increasing demand of physicians and surgeons for a reliable battery, capable of furnishing a very heavy current for cautery work.

The battery, when set up, will last with ordinary use in cautery work for several months, during which time it requires no attention whatever, and when exhausted, the elements can be renewed at a trifling cost.

The cells are closed and the elements do not have to be removed from the solution, as there is practically no action when cells are not in use, and consequently no waste in battery.

It is also equally well adapted for running small motors wound to suit battery, and for lighting electric headlights for throat work and other diagnostic purposes.

Being a primary battery it is entirely independent of any external system, and does not require to be sent to a central station for recharging, as is the case with storage batteries.

The internal resistance is really only a fraction of an ohm, therefore the whole energy of battery is thrown into the external circuit, and our cautery cells will deliver on actual work from 20 to 30 amperes, according to the size.

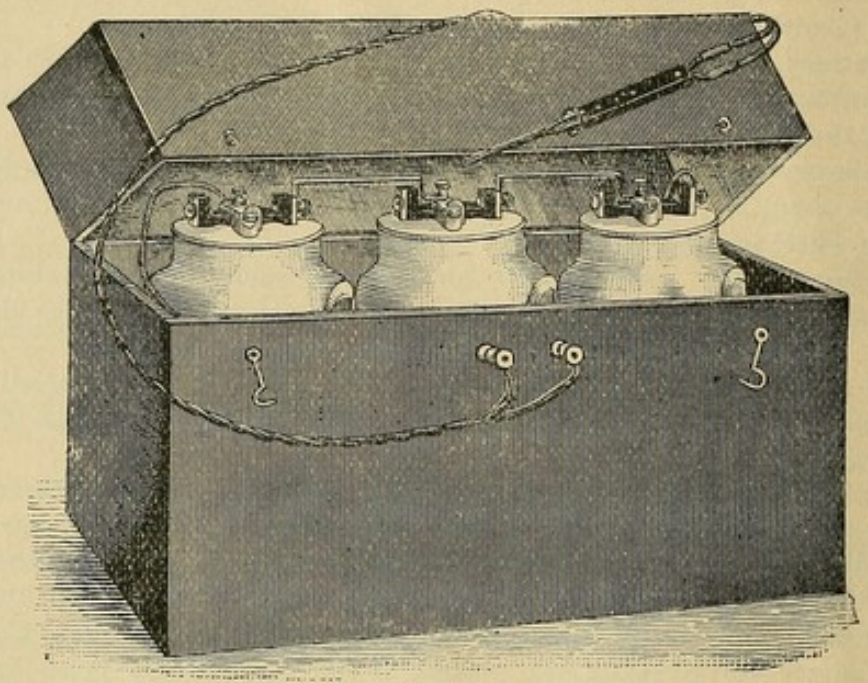
The three-cell battery on page 10 is intended only for use in light throat and nose work and is sent out complete with cautery handle and knife. For heavy work and where the physician also wishes to run motors and small diagnostic lamps we make the battery described on page 12. This we supply with either six or eight cells, according to the distance the leads have to be run from the battery to the rheostat. These cells, if desired, can be placed in a closet or cellar and connected to rheostat in operating room by heavy copper leads not smaller than No. 8 B. W. G. insulated wire.

We wish particularly to call the attention of the medical profession to some of the advantages our batteries have over any other Cautery Battery (either storage or primary), that should prove it to be indispensable to every well equipped office.

They require absolutely no attention until they need recharging. The current is perfectly constant during the whole life of the battery, so that there is no danger of burning out either lamps or cautery knives. It is always ready for use.

In volume III. of "A System of Practical Therapeutics," Dr. H. N. Spencer, of St. Louis, in his article on "Chronic Catarrhal Diseases of the Nasopharynx and Consequent Diseases," says: "By far the most perfect battery is the Edison-Lelande. I am indebted to professor Barker of the University of Pennsylvania, for my first knowledge of this instrument. Its superiority over all others consists in its absolute reliability. I have employed one daily for six months at a time without recharging it."

EDISON 3 CELL CAUTERY BATTERY.



Size, 26 in. long, 10 inches wide, 17 in. deep.

Battery consists of 3 type "W" cells contained in a handsome polished lead lined oak box.

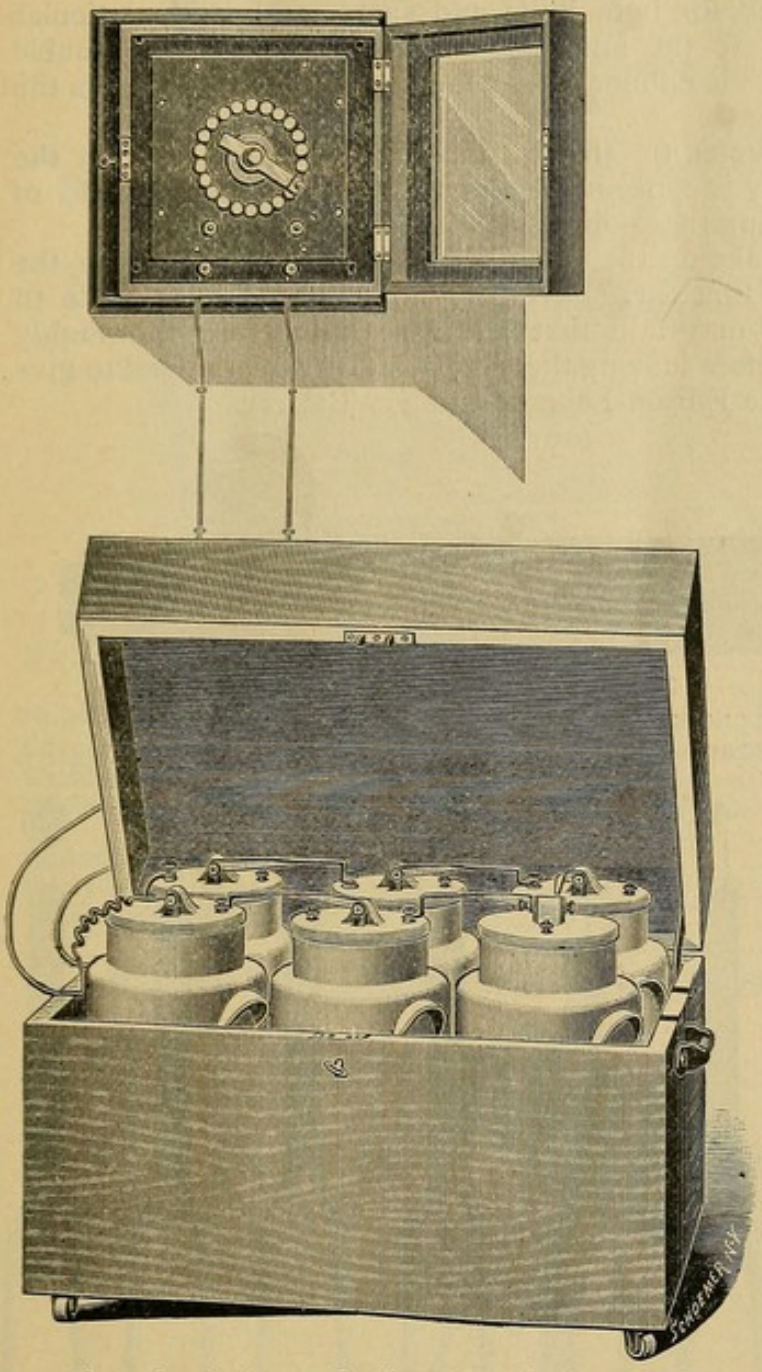
Complete with Cautery Cords, Cautery Handle and one Knife, - $25.00

For Prices of Renewal Parts of "W" cell see page 7.

This battery is not adapted for running either motors or diagnostic lamps, nor will it heat a platinum snare.

Erata : The first line on this page should read "Edison 6 and 8 Cell," instead of "Edison 6 and 6 Cell."

EDISON 6 AND 6 CELL CAUTERY BATTERIES.



Size, 2 ft. 2 in. long, 1 ft. 6 in. wide, 1 ft. 6¾ in. high.

Battery consists of either 6 or 8 type "W" cells contained in a handsome polished lead lined oak box mounted on castors, with lock and key. This battery, if desired, can be placed in a cellar or closet, and is connected to the rheostat with heavy wire leads.

Outfit complete, comprising 6 cells in box, combination lamp and cantery rheostat, in oak case with plate glass cover, cords, necessary connections, wiring and complete charge for battery,

$60 00.

Same outfit, only with 8 cells instead of 6,

$70 00.

For Price of Renewal Parts of "W" cell see page 7.

These batteries are also adapted for running small diagnostic lamps and motors, and for snare work.

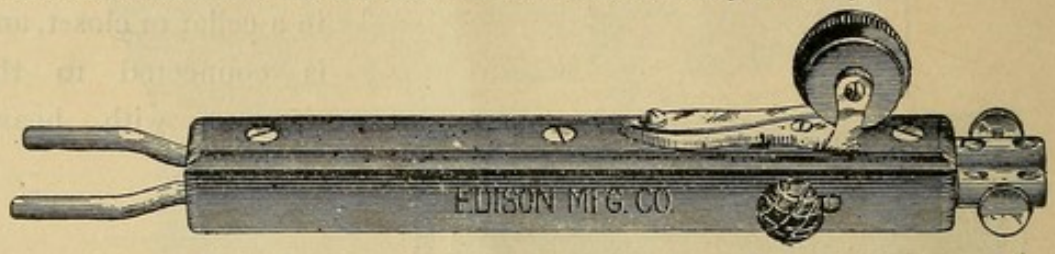
EDISON CAUTERY HANDLE AND KNIVES.

We wish to call particular attention to our improved Cautery Handle and Knives.

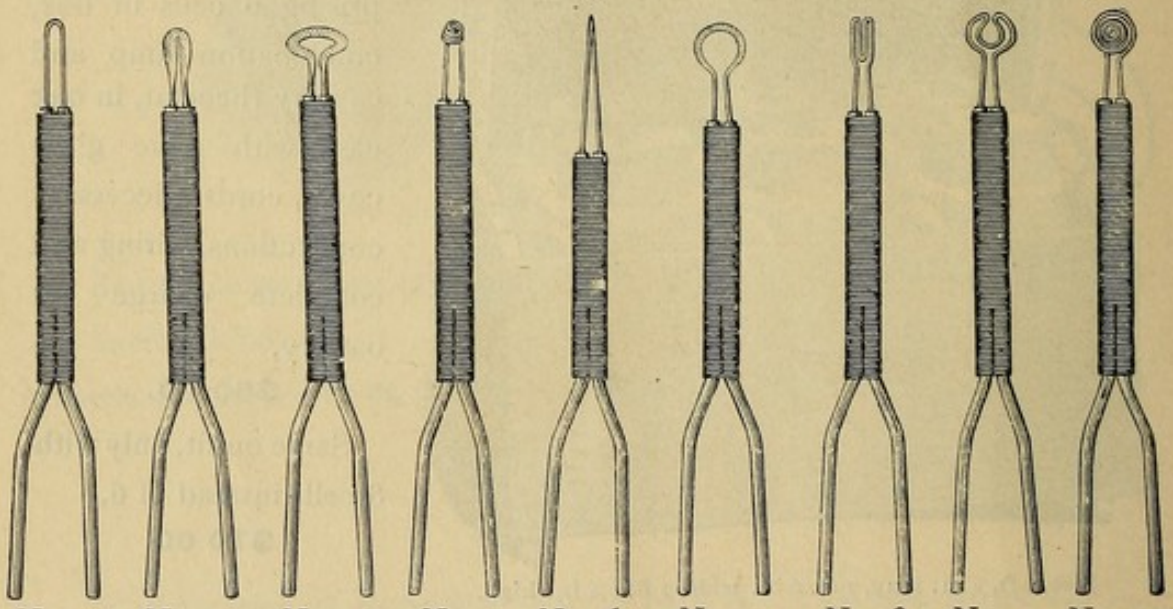
The handle is adapted for both knife and snare work, and particular attention has been paid to the interior construction, so that all trouble caused by imperfect contact is eliminated—a fault so frequently found in the handles in present use.

The knives are constructed on strictly scientific principles, so that the whole energy of the battery is concentrated in the platinum tip, instead of being wasted before reaching that point.

We were induced to take up the manufacture of these knives from the fact that up to the present time there have been no cautery knives made to a definite standard. We may add that all these knives are thoroughly tested and standardized before leaving the factory and are guaranteed to give perfect satisfaction with the Edison-Lalande Cautery Battery.

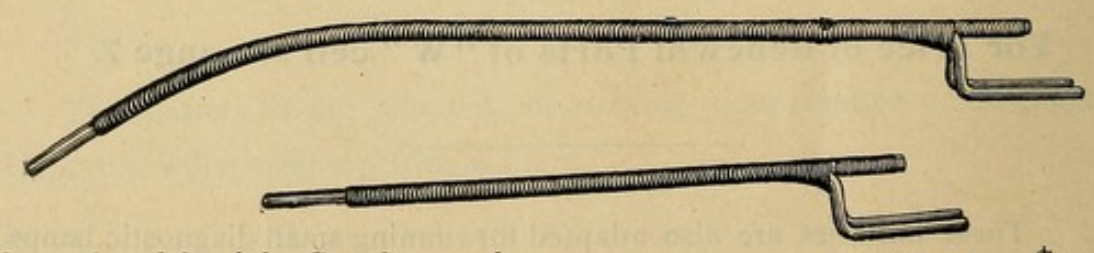


Cautery Handle complete.....$5.00
" " without snare attachment..... 4.00



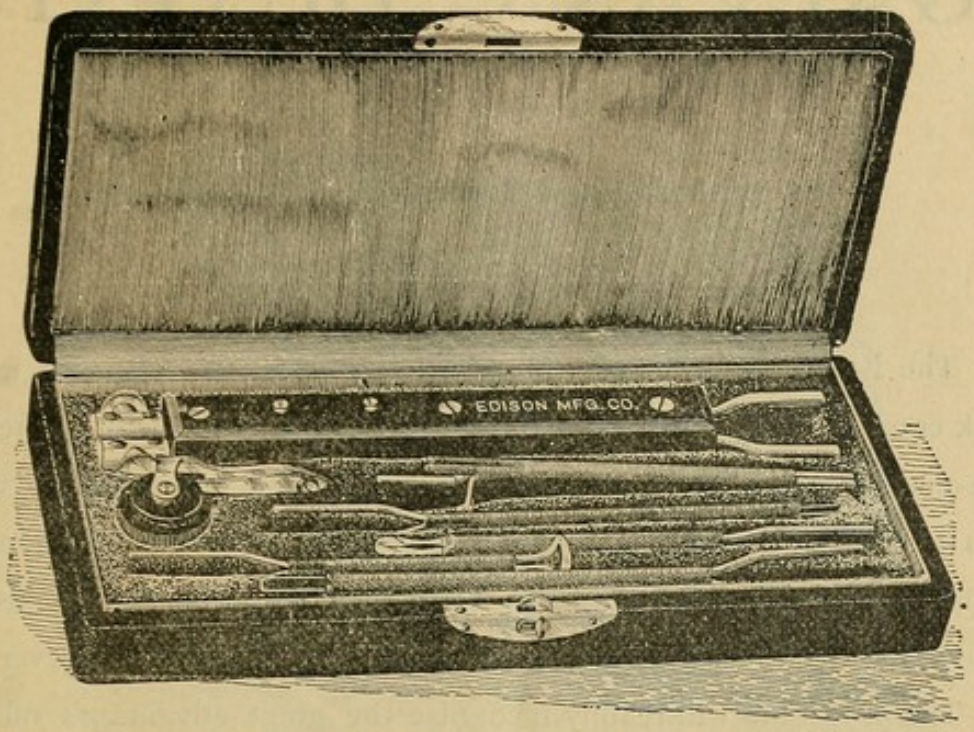
No. 2. No. 3. No. 4. No. 5. No. 6. No. 7. No. 8. No. 9. No. 10.

Cautery Knives, any pattern, each.....$1.50



Curved and Straight Canulas, each.....$1.50

EDISON CAUTERY INSTRUMENT CASE.

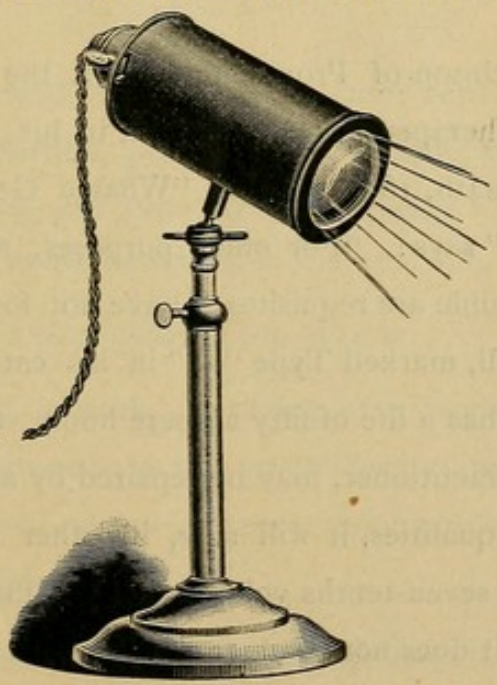


Morocco Leather Case containing one Edison Cautery Handle, with snare attachment, canula and Platinum snare, also one each Nos. 2, 3, 4 and 5 Cautery knives.....**$16.00**

CAUTERY ACCESSORIES.

Circular Cautery Rheostat in oak case, with bevelled glass front (see page 11).....**$17.00**
Circular Cautery Rheostat on polished oak base, with hard rubber top, without case.... **12.00**
Polished Oak Case with bevelled plate glass cover, lock and key, to contain Cautery Rheostat..... **5.00**
Cautery Cords..... **3.50**
Heavy Wire Cautery Leads, ten feet long, per pair..... **2.00**
Leads over 10 feet will cost per foot..... **.10**

DELEVAN CONDENSER.—For Throat Illumination.



This Condenser has been designed to take the place of the old McKenzie Condenser, where street current can be obtained. The incandescent lamp is so constructed that there is absolutely no shadow thrown on the object examined. It is fitted with a Ball and Socket attachment which allows the lamp to be adjusted to any angle, making it much more convenient to the operator.

Price complete, with Flexible Cords and Plug Attachment, • $18.00.

GALVANIC OUTFITS.

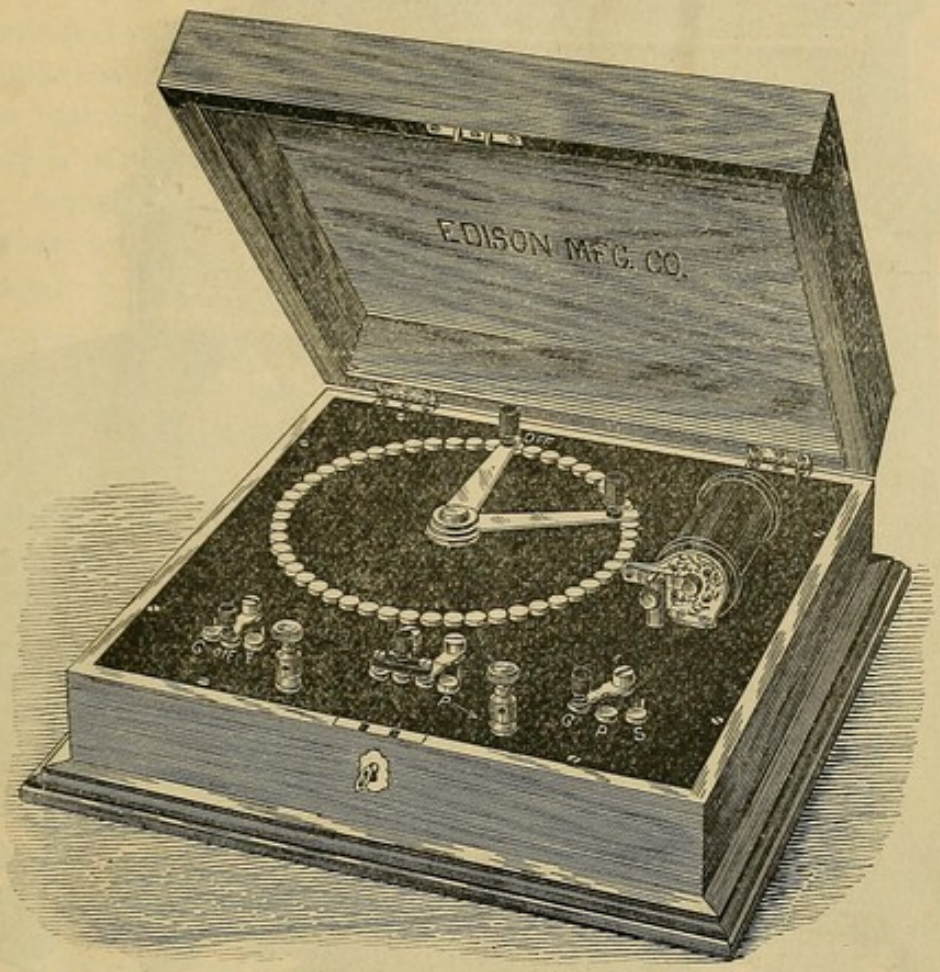
Switchboard and Batteries for Office Work.

The EDISON ***Galvanic Batteries*** and ***Switchboard*** for office work consists of 50 Edison-Lalande cells, Type "J," with switchboard, pole-changer and Faradic coil, with interchangeable fast and slow vibrator. This is the most complete outfit for a physician's operating room, and will furnish a perfectly even and constant current during the whole life of battery, during which time it needs absolutely no attention whatever.

The profession will readily recognize the great advantages offered by these batteries for Apostoli work, as, although it is absolutely necessary to use a perfectly even current for this work, it has hitherto been impossible to obtain a battery that would deliver a steady current, and recourse has had to be made to an adjustable rheostat for regulation as the current in battery fell off. This is now rendered unnecessary, as the Edison-Lelande Battery will give absolutely the same current for hours or even days at a time if required.

Dr. W. F. Hutchison of Providence, R. I. the Vice-President of the American Electro-Therapeutical Association, in his paper read before that body on September 24th, 1891, entitled "What a General Practitioner can do with Electricity," says: "For office purposes, where maximum of life and minimum of trouble are requisites, I have not found anything equal to the New Edison Cell, marked Type " J " in his catalogue. It is neat, as cheap as any other, has a life of fifty ampere hours, which means a year's work for a general practitioner, may be repaired by any one, and has that most valuable of all qualities, it will stay, in other words, it will give the some voltage, about seven-tenths volt per cell, as long as any part of the elements remain. It does not commence work with one volt per cell and slide steadily down to nothing, as every variety of Leclanche cell does, one may always depend upon it."

Galvanic Switchboard.



Hard Rubber Switchboard, in black walnut case, containing 50 buttons, selector switch, pole changer, Faradic coil, with interchangeable fast and slow vibrator, sponge electrodes, battery cords and cable, as shown in the cut..... **$30.00**

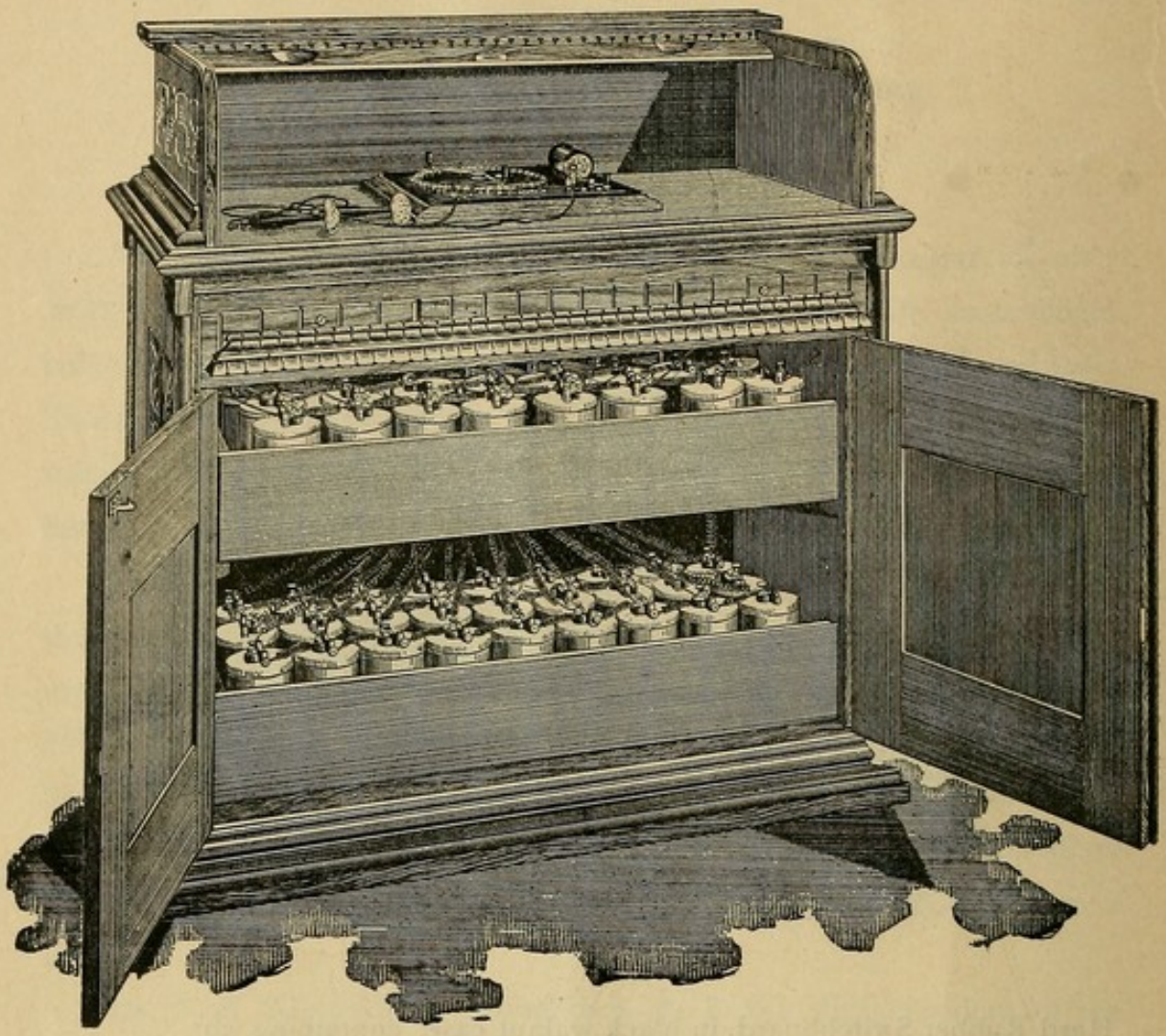
The same with bevelled plate glass in top of case..... **32.00**

Complete Outfit for office work, consisting of a Hard Rubber Switchboard, as above cut, and 50 type "J" cells (any number of which can be used on the induction coil), cords, sponge electrodes and cable..... **95.00**

Unless specially ordered, cables for the above outfits will be supplied ten feet long.

Cables of extra length will be charged for at per foot..... **.22**

EDISON GALVANIC CABINET FOR OFFICE WORK.



FLOOR SPACE 3 FT. 10 IN. X 2 FT. 2 IN.

This outfit consists of a handsomely carved quartered oak roll top cabinet, in the lower part of which are two sliding lead lined trays to hold 50 type "J" Edison-Lalande cells, connected with the switchboard on top of cabinet. The switchboard is similar to the one on page 15. The cabinet has two drawers for electrodes, etc., and is fitted with Yale locks. No expense has been spared to make this the handsomest and most efficient outfit on the market.

Price List.

Cabinet as above, complete with cords, sponge electrodes and 50 type "J" cells (see page 5), price $135.00
The same cabinet with Kennelly milliammeter 165.00
Price of renewal parts for complete battery 15.60

EDISON COMBINATION CAUTERY AND GALVANIC CABINET.

This cabinet is similar in design to the galvanic cabinet, and occupies the same space. It is fitted however, with a rheostat and 6 type "W" cells for cautery work.

Price complete $180.00
The same with Kennelly milliammeter 210,00

Faradic Batteries.

The EDISON ***Physicians' Faradic Battery*** is eminently adapted to the use of the profession, and consists of two EDISON-LALANDE cells connected to a powerful medical induction coil mounted on a polished hard rubber base; the whole outfit enclosed in a polished walnut box.

The coil is so wound that the strength of current in the primary and secondary is perfectly progressive.

The vibrations obtained are of a very pleasing character, being entirely free from uneven pulsations, a cause of considerable trouble frequently experienced.

When battery is not in action, it is unnecessary to remove the zincs from solution (as in most other Faradic batteries), but simply to turn the switch, as there is no waste on open circuit.

The current furnished by the cells is perfectly constant, so that battery can be used for hours without falling off in strength.

The cost of renewal of battery is very low and perfectly easy to accomplish.

The EDISON ***Family Faradic Battery*** fills a demand for a first-class battery at a moderate price. In construction, it is similar to the physicians' battery, only that the coil is mounted on a walnut base to match the box, instead of hard rubber, and the cells have porcelain covers.

In both these batteries the cells are perfectly airtight.

EDISON PHYSICIANS' FARADIC BATTERY.

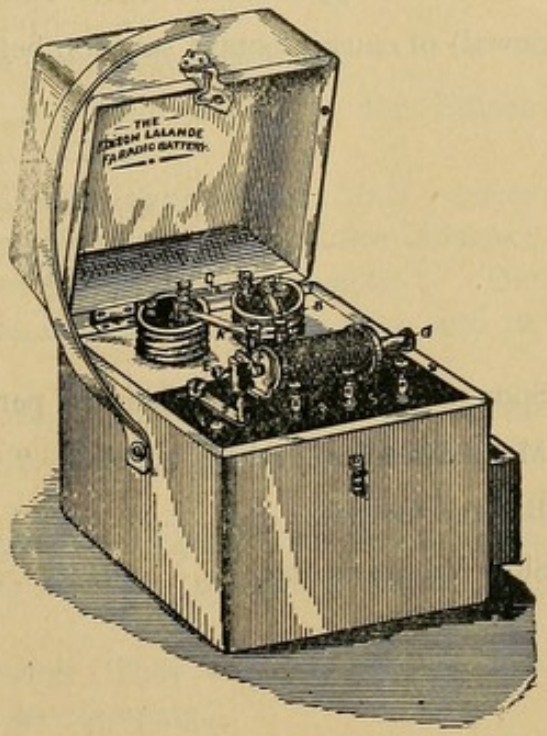
Price Complete, in Polished Walnut Case, together with Sponge Electrodes..... **$15.00**

The same with interchangeable fast and slow vibrators.... **16.00**

Price of Renewal Parts For Both Cells.

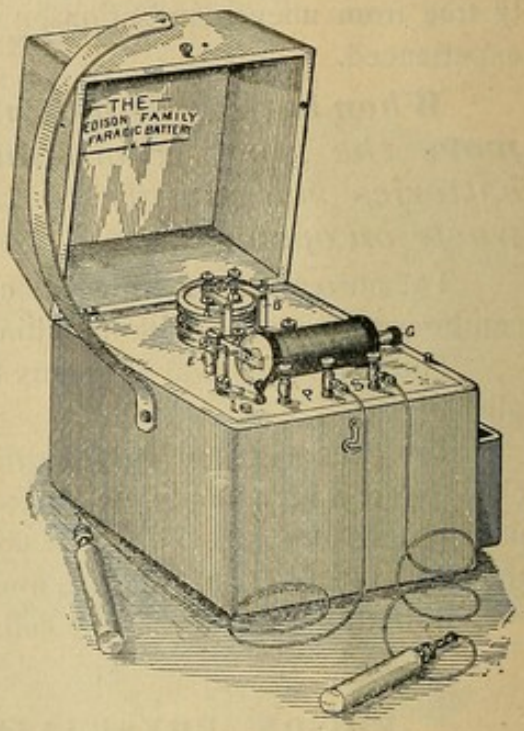
2 Copper Oxide Plates.....	$0.16
2 Zinc Plates.....	16
Can containing 4 sticks Potash..	16
2 oz. Bottle of Oil sufficient for 2 cells.....	05
Total.....	.53

The Copper Oxide Plate and Zinc Plate will stand two charges (one renewal) of caustic potash solution before being exhausted.



EDISON FAMILY FARADIC BATTERY.

Price complete, in Polished Walnut Case, together with Metal Electrodes..**$10.00**



Price of Renewal Parts For Both Cells.

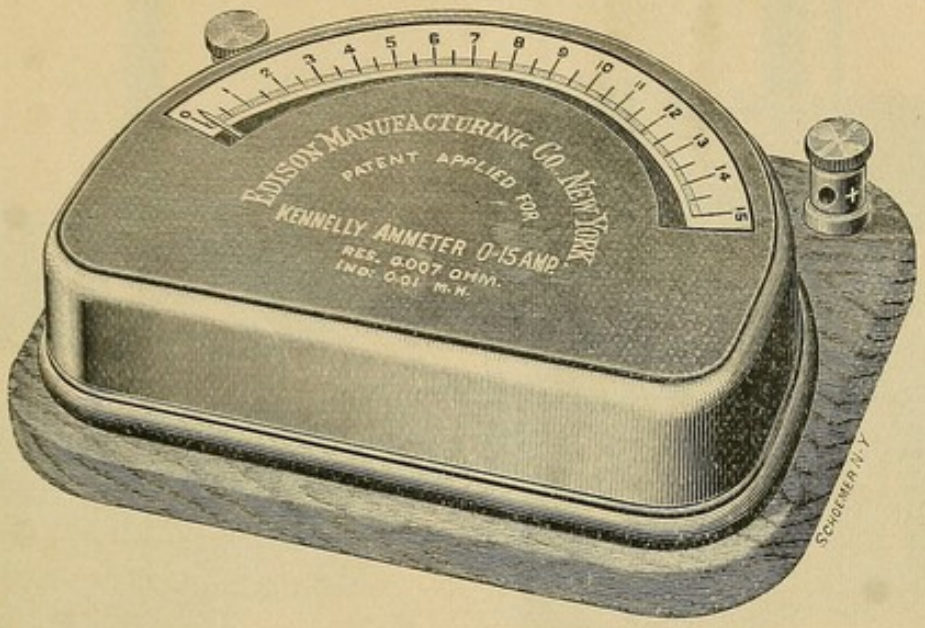
2 Copper Oxide Plates.....	$0.16
2 Zinc Plates.....	.16
Can containing 4 sticks Potash	.16
2 oz. Bottle of Oil for 2 cells.	.05
Total....	.53

The Copper Oxide Plate and Zinc will stand two charges (one renewal) of caustic potash solution before being exhausted.

Prices of Accessories.

Sponge Electrodes and Handles, per pair.....	**$1.00**
Metal Handles..... " "	**.50**
Battery Cords..... " "	**.50**
Slow Vibrators, each...	**1.00**

THE
KENNELLY STANDARD AMMETER AND MILLIAMMETER.



A few points demonstrating the special features distinguishing these instruments from all others now in use.

1st. They have no iron, steel, or magnetic metal in their moving parts, and consequently will not alter or demagnatize under any reasonable treatment.

2nd. They are not affected by the earth's magnetic field, nor even by the stray field of dynamos beyond a few feet radius.

3rd. The scales are nearly uniform, and very distinct, being read off with mirror to avoid parallax.

4th. The movements of the indicator are practically dead-beat.

5th. The instruments are calibrated and standardized at the Edison Laboratory.

6th. They have very low resistance and inductance, so that they possess great electromagnetic power, combined with very little influence upon the circuit whose current strength they measure. The resistance of the 500-milliampere instrument is 0. 3 ohm, and its inductance 5 microhenrys.

7th. They are very compact and portable, the outside dimensions of the instrument being 6¼ in. x 8¼ in. x 2¼ in. high; and their weight in wooden case, six pounds.

8th. There are no adjustments, levelling screws or clamps for shipment, so that the instruments are always ready for operation, and can be used in any position.

9th. The binding posts are large and strong. They will take a large wire by penetration, or a small wire by clamping.

PRICE LIST.

AMMETERS.

Scale	0 to 5	amperes, divisions	$\frac{1}{20}$	ampere	$50.00
"	0 to 15	" "	$\frac{1}{10}$	"	50.00
"	0 to 25	" "	$\frac{1}{5}$	"	60.00
"	0 to 50	" "	$\frac{1}{2}$	"	65.00

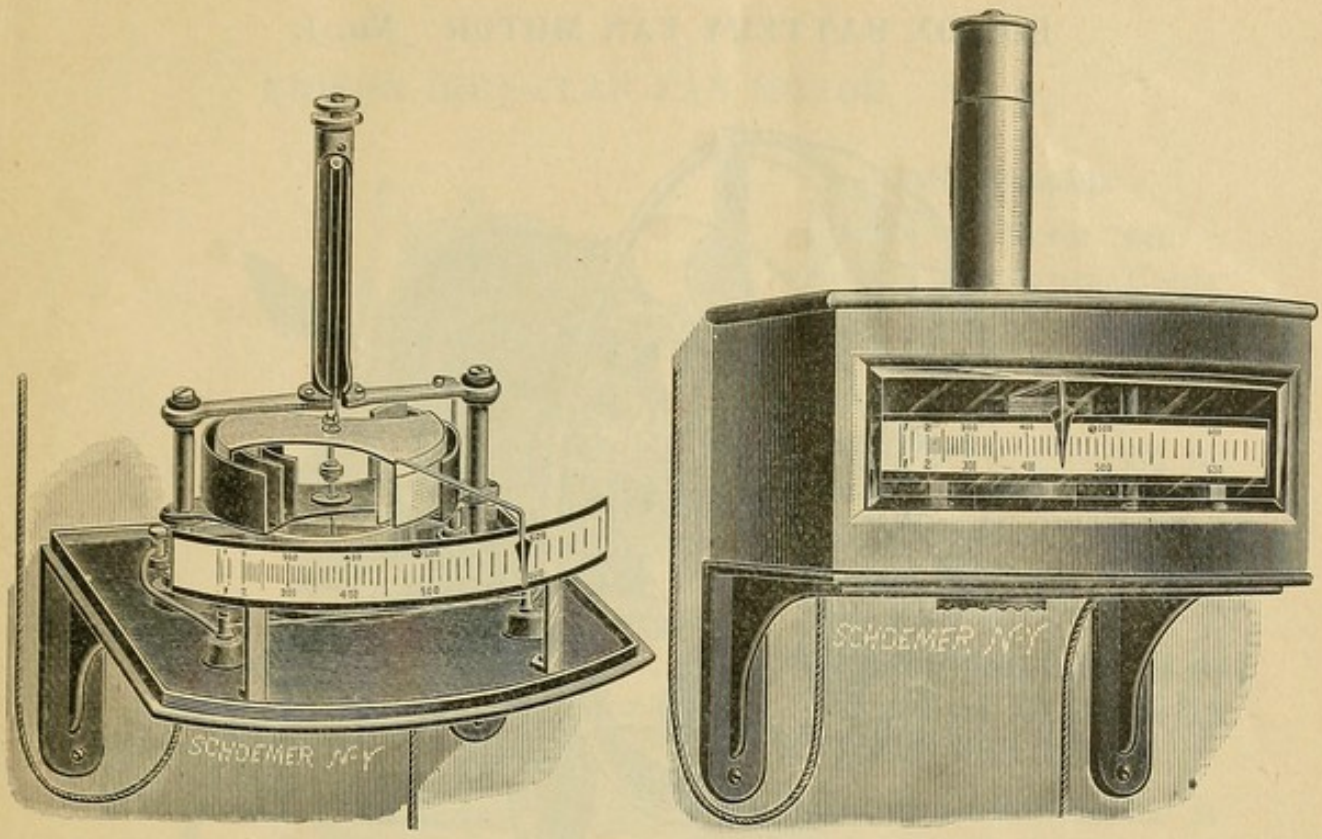
MILLIAMMETERS.

Scale	0 to 100	milliamperes, divisions	1	milliampere	$37.50
"	0 to 200	" "	2	"	37.50
"	0 to 500	" "	5	"	37.50

Same Milliammeters with Hard Rubber Base and Nickel Plated Parts.

Scale	0 to 100	milliamperes, divisions	1	milliampere	$40.00
"	0 to 200	" "	2	"	40.00
"	0 to 500	" "	5	"	40.00

The above instruments are the ones generally carried in stock. Instruments with other readings can be very quickly furnished to order.



KENNELLY STANDARD STATIC VOLTMETER.

FOR HIGH TENSION CURRENTS, BOTH CONTINUOUS AND ALTERNATING.

Scale 0 to 600 volts..... $40 00

" 0 to 1200 " 40.00

This instrument is designed on the well known principle of the electrometer.

The movable vane, (with 2 perpendicular grooved segments on each end), as shown in the cut, is suspended by a bifilar suspension from the top of the hollow column, and is connected to the line. The fixed vane, which is of a similar shape but slightly larger, (and with 3 perpendicular grooved segments on each end), is placed in an inverted position relatively to the movable vane, and is connected to the ground.

When the current is on the line, the movable vane becomes charged positively, and the fixed vane, negatively; consequently the former, being free to move, is drawn into the channels between the perpendicular grooved segments of the latter, and the indicator travels over the scale, the reading depending wholly upon the difference of potential between the two vanes.

Among the great advantages possessed by this instrument are the following:

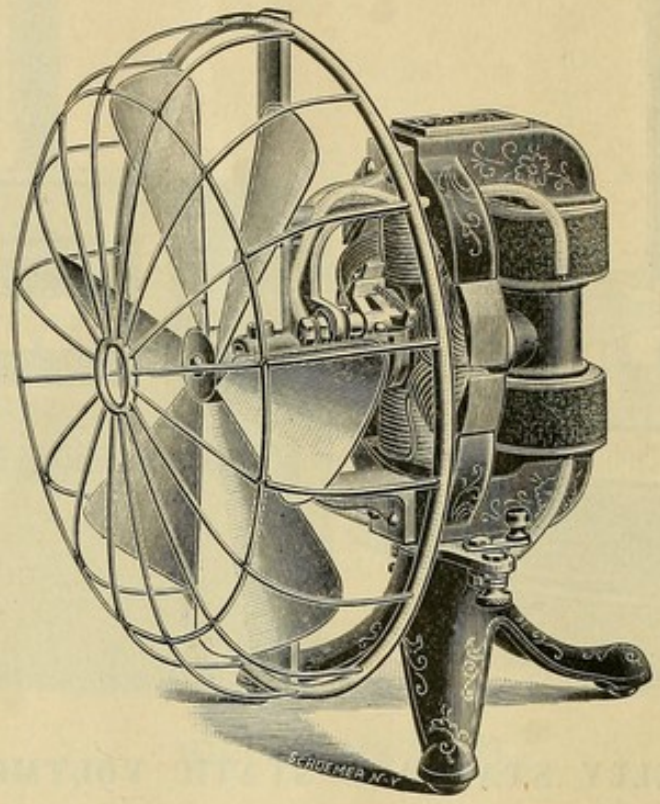
It consumes absolutely no current.

It is not affected by dynamos.

It is easily calibrated, and when once installed it never needs recalibration.

The divisions in the scale are most open between the working limits of the various systems for which the instruments are designed, viz.: between 400 and 600 volts on the 600 volt instrument, and between 800 and 1200 volts on the 1200 volt instrument.

EDISON BATTERY FAN MOTOR. No. 1.



Outfit complete, with charge to run 125 hours, = $25.00

Consisting of four Edison-Lalande cells, type "S" porcelain Jars, in polished oak box, 25 inches long, 8 inches wide, 15 inches high; Motor Battery Cords, Fan and Guard.

Edison Battery Motor, with 9-inch fan and Guard, = $12.00

The Motor with Fan occupies a space 10x12 inches. It is absolutely noiseless and the most efficient Battery Fan Motor on the market.

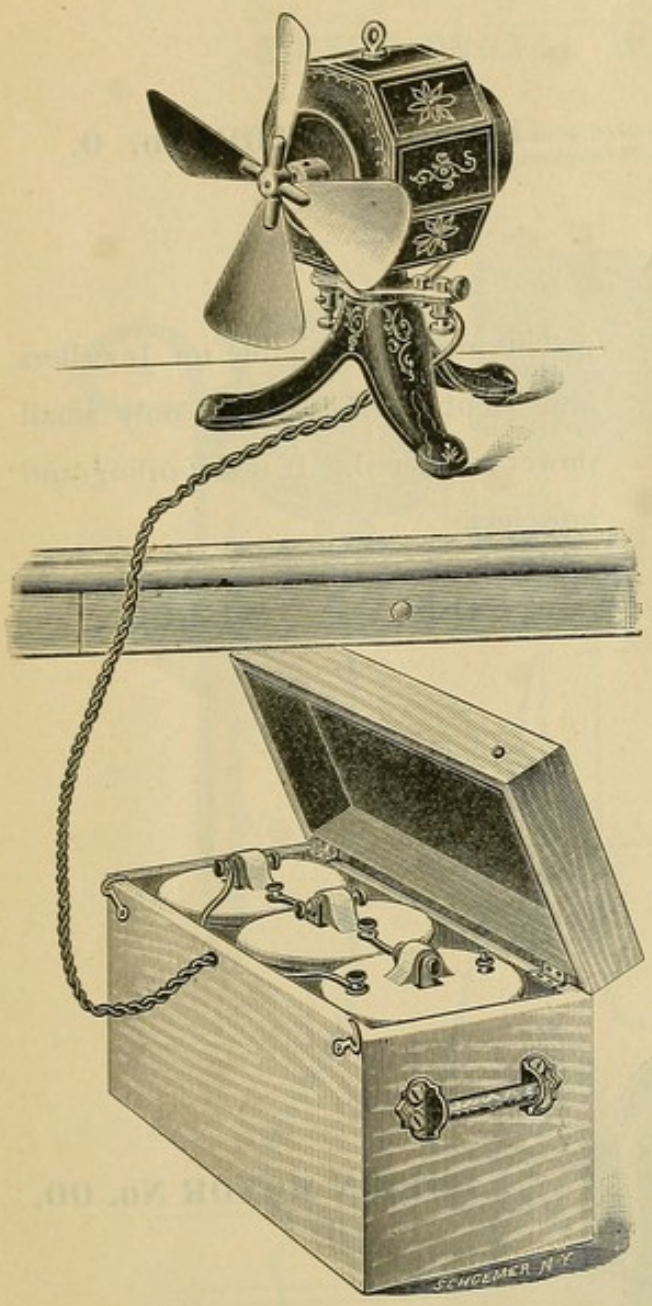
Flexible Battery Cord connecting motor to battery.....**$1.00**

Complete Renewals for 4 cells, type "S" = = $4.76

8 Zinc Plates, 21c. each..... $1.68
8 Copper Oxide Plates, 25c. each..... 2.00
8 sticks Caustic Potash in can..... .96
Bottle Heavy Paraffine Oil..... .12

Total....$4.76

EDISON IRON-CLAD FAN MOTOR. No. 2.



Outfit. Complete

Including Motor with 7 inch Fan, and Battery Cords, 3 Edison-Lalande cells, Porcelain Jars, type "Q" (in polished oak box 18¾ inches long, 7 inches wide, 9¾ inches deep), with charge to run motor 75 hours,

$15.50.

Edison Iron-Clad Battery Fan Motor with 7-inch Fan, $8.00.

We wish to call special attention to the following advantages in this motor which are possessed by none other in the market.

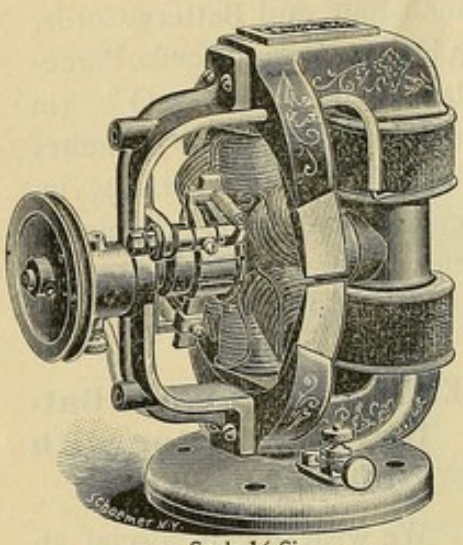
It is noiseless, has self-oiling bearings and is entirely enclosed in iron-clad case, being provided with glass window at rear for regulation of brushes. The workmanship is of the very highest grade.

When ordering renewals for this outfit always state for type "Q".

Complete renewals for 3 cells, type "Q" - $2.07

6 Zinc Plates, 12c. each	$0.72
3 Copper Oxide Plates, 25c. each	.75
6 sticks Caustic Potash in can	.48
Bottle Heavy Paraffine Oil	.12
Total,	$2.07

Edison Battery Motors for Power.

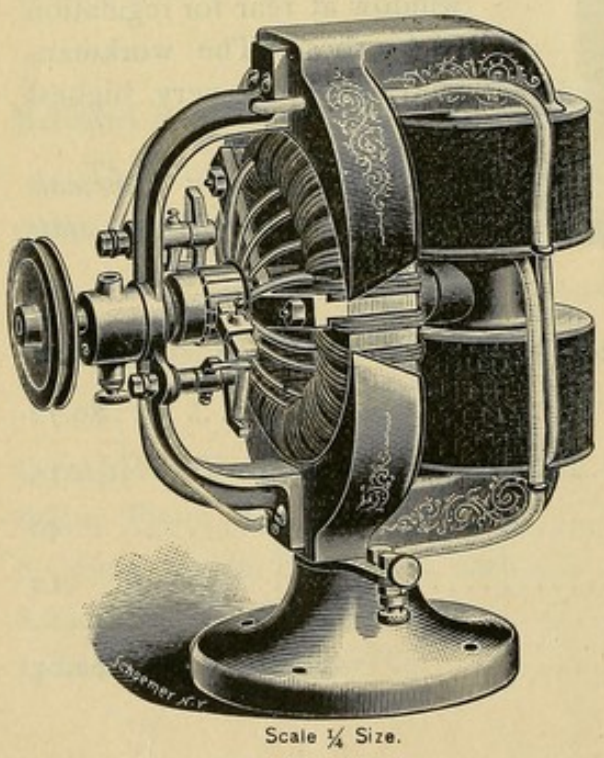


Scale ¼ Size.

EDISON MOTOR No. 0.

This motor is suitable for Jewellers and Dental lathes where only small power is desired. It is self-oiling and noiseless.

Price, - $12.00.



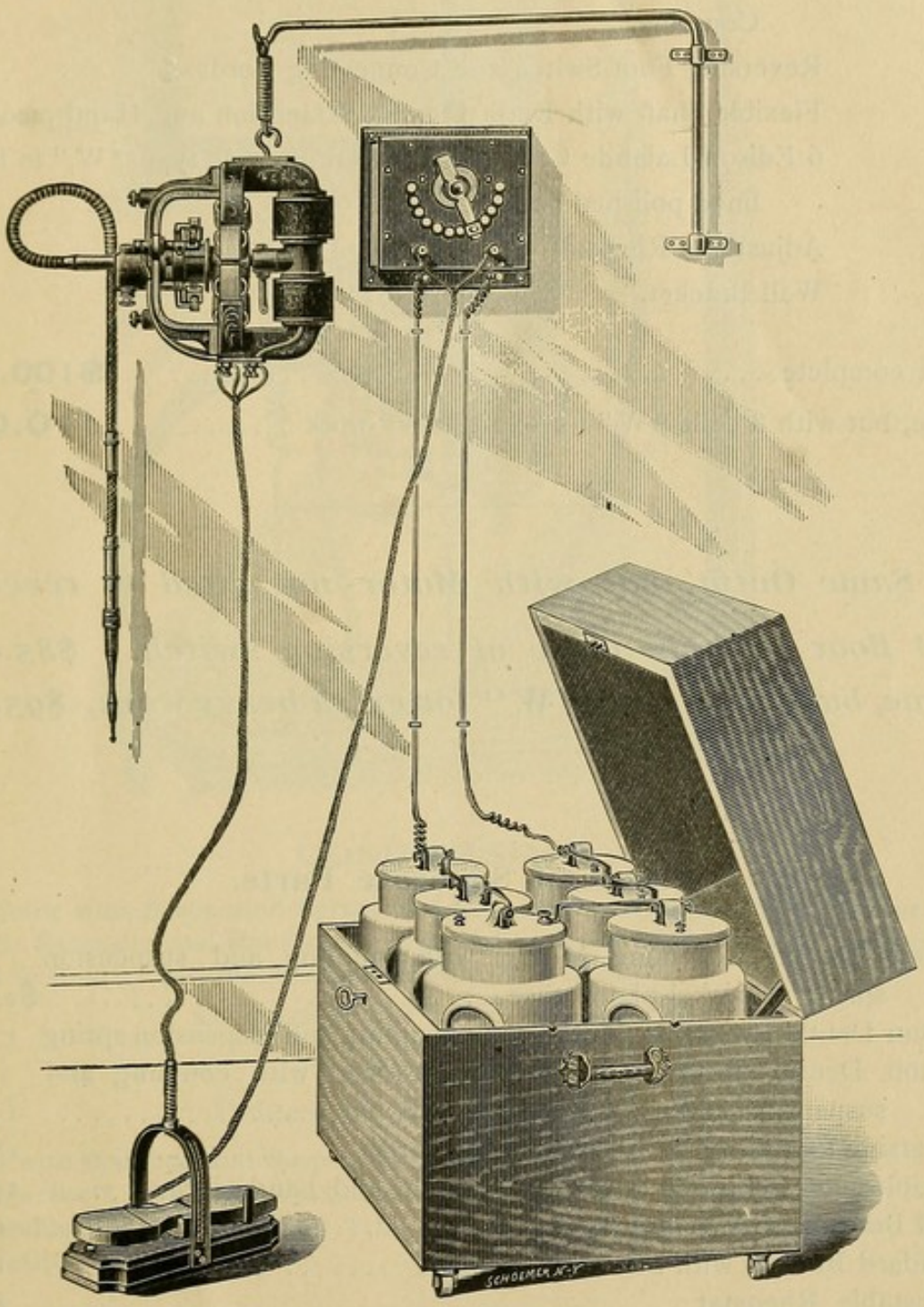
Scale ¼ Size.

EDISON MOTOR No. 00.

This motor is designed for heavier work, such as sewing machines, electro static machines, etc.

Price - $25.00.

EDISON DENTAL MOTOR OUTFIT.



Price complete, $100.00.

Edison Dental Motor Outfits,

CONSISTING OF

Edison Dental Reversing Motor with Suspension Spring and Coupling.

Reversing Foot Switch and Connecting Cords.

Flexible Shaft with Extra Flexible Extension and Hand-piece.

6 Edison-Lalande Cells (600 ampere-hours), type "W," in lead lined polished oak box.

Adjustable Rheostat.

Wall Bracket.

Price complete..... ....**$100.00**

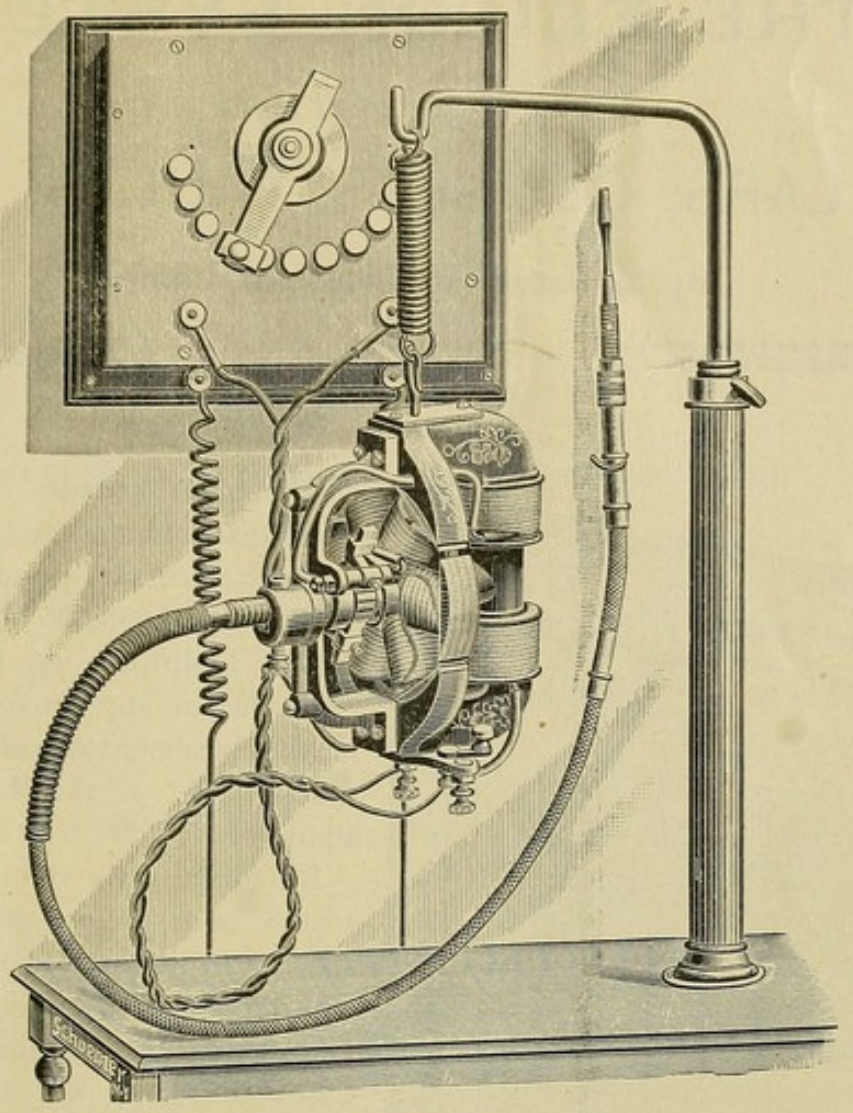
Same, but with 8 cells "W" for extra heavy work **110.00**

Same Outfit, but with Motor not fitted to reverse and floor push in place of reversing switch, $85.00. Same, but with 8 cells "W" for extra heavy work, $95.00

Prices of Separate Parts.

Edison Dental Reversing Motor, with coupling and suspension spring, in nickel plated case	$24.00
Edison Dental Reversing Motor, with coupling and suspension spring	17.00
Edison Dental Motor (not fitted to reverse), with coupling and suspension spring	15.00
Reversing foot-switch, with connecting cords	18.00
Flexible shaft, with extra flexible extension and hand-piece	17.00
Wall Bracket, with bent arm	6.00
Standard Bracket with bent arm	6.00
Adjustable Rheostat	8.00
Battery of 6 Edison-Lalande cells "W," in lead lined polished oak box	39.00
Same battery without polished oak box	29.00
Floor push, with connecting cords	3.50
Metal case for enclosing motor	7.50

THE EDISON SURGICAL MOTOR OUTFIT.



COMPRISING:

Motor with Suspension Spring and Coupling. Flexible Shaft with extra flexible Extension and Hand-piece. Regulating Motor Rheostat and Connecting Cords to Motor. Adjustable Standard with Bent Arm.

Complete Price, = $45.00.

Prices of Separate Parts.

Motor with Coupling and Suspension Spring	$15.00
Flexible Shaft, with Extra Flexible Extension and Hand-piece	17.00
Adjustable Standard with Bent Arm	6.00
Regulating Motor Rheostat	8.00

Battery of 6 Edison-Lalande cells, porcelain jars, type "W," with charge for same, $29.00.

This battery is also suitable for Cautery work when used with a regulating Rheostat made specially for this purpose, which could be supplied together with heavy leads and cautery cords at an extra cost of $16.00.

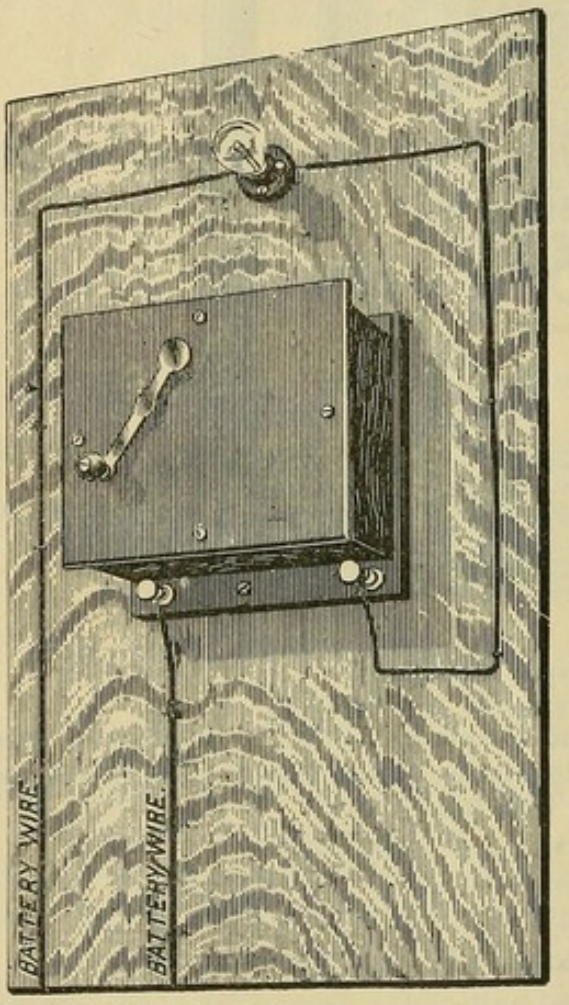
THE EDISON SYSTEM

FOR LIGHTING

CELLARS, CLOSETS, VAULTS, ETC.,

By Miniature Incandescent Lamps.

INEXPENSIVE. SAFE. AUTOMATIC.



The plant consists of a battery of 6 Edison-Lelande cells, type "S," and the necessary number of time-switches and lamps.

The lamp can be placed (for example), at any convenient point in the basement or cellar, and the time-switch at the head of the stairs.

By turning the handle of the switch once, before going down, the lamp will burn for 2½ minutes, when it is turned off automatically. By turning it two, three, or four times the lamp will burn 5, 7½ or 10 minutes respectively.

The battery will run one lamp for 100 continuous hours, and as there is no waste when not in use, and no attention needed, it will be found very economical, and will last with ordinary use a year or more.

Three or four lamps and switches can be used with the same battery.

PRICE LIST.

Outfit, consisting of 1 time-switch, 1 four (4) candle power lamp with shade and socket, and 6 Edison-Lelande cells, type "S" porcelain jars,	$20.00
The same, with 6 Edison-Lalande cells, type "W" (which has twice the life of type K),	32.00
Extra time-switch, socket and lamp,	3.50

Notice to Purchasers.

This catalogue supersedes previous editions.

Care should be taken to give the present number as well as name of every instrument ordered.

All prices are strictly net and subject to change without notice.

Our terms are cash with order, or thirty days time when satisfactory reference is furnished.

If desired, goods will be shipped by C. O. D. express at purchaser's expense, provided remittance accompanies the order equal to one-third the total amount of bill.

No order for less than five dollars will be sent C. O. D.

Telegraph orders should be confirmed immediately by mail.

Whenever possible it is desirable to place orders several weeks before delivery is required.

Remittance should be made by express money order, postal money order, sight draft or registered letter.

Packing and cartage are always extra.

Due care is exercised in preparing for shipment, but we assume absolutely no responsibility for damage to goods after they leave our hands.

EDISON MANUFACTURING CO.