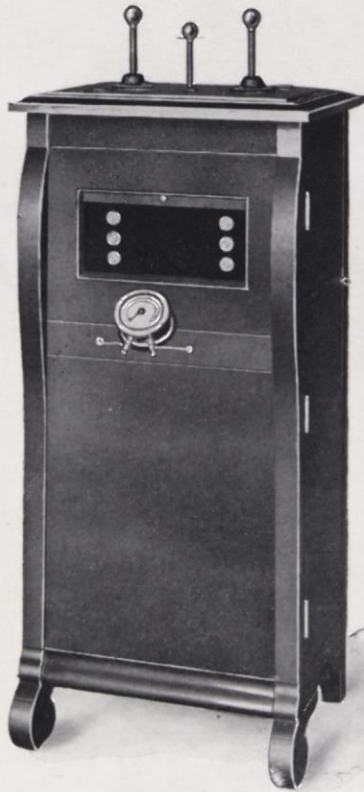


BULLETIN L

VULCAN

High-Frequency Treatment Apparatus



VULCAN COIL COMPANY

239 SOUTH LOS ANGELES STREET
LOS ANGELES, CAL.

Home Remedies Part 1



High-Frequency Currents

While there still remains a disposition on the part of those who have not given the subject proper consideration to disparage the use of high frequency currents in the treatment of disease, their value has been too well established to admit of question, and apparatus for the production of high frequency currents in varied forms is now a necessary part of every physician's armamentarium.

Experimental work which has been carried on over a long period of years by the inventor of the Vulcan Coil, who is recognized as the leading designer of this class of apparatus in America, has, through evolution, resulted in a close approach to perfection in high frequency treatment apparatus, and we now offer to the profession not only complete treatment machines, delivering all modalities, but also attachments in the form of Treatment Units, which may be added by those who are fortunate enough to own Vulcan X-ray Coils, at small expense.

The diseased conditions which have been found to yield to high frequency treatments are many and of varied character. The application of high potential high frequency currents has opened a field of unlimited possibilities as yet unknown to the average physician, but he is now confronted with the fact that a new science has been developing. It is now fully established that profound physiological results can be obtained, far outclassing those obtained with the faradic and galvanic currents, with the result that the use of the latter has been practically discontinued. It is now possible to cure many diseases formerly considered incurable. The fact that all modern hospitals are installing apparatus for high frequency treatment work and the leading colleges are teaching electro-therapy proves most convincingly that the physicians who are most progressive now regard electricity as one of the best and most dependable agents for the cure of disease.

The Vulcan Treatment Apparatus should not be confused with the "toy" apparatus with which the market has been flooded and which has done more than any other thing to discredit high frequency currents as a remedial agent. The apparatus we offer delivers the various modalities in their perfection and in heavy volume, under the most absolute and finely graduated control of the operator at all times and by means of mechanism which is simplicity itself. In our apparatus, as in no other, the frequency of oscillation may be varied from low frequency as used for counter-irritation to the highest ever developed, and from which the patient receives no sensation whatever excepting that of heat.

Vulcan Coil Co.

Los Angeles, Cal.



Colonial High-Frequency Treatment Apparatus

Type D

A notable addition to our line, the culmination of years of experimental work, with the requirements of the specialist in Electro-Therapy in view, delivering all modalities in high frequency currents in their perfection and in heavy volume, all under the most absolute and finely graduated control by the operator. See illustration on front cover.

D'ARSONVAL, *Auto-Condensation and Auto-Conduction*.—The apparatus will deliver from 0 to 2000 milliamperes, not merely to, but through the average patient.

DIATHERMY or THERMO-PENETRATION.—Volume from 0 to a point in excess of any requirement.

FULGURATION.—It delivers the most perfect current for Genito-Urinary work obtainable from any apparatus in existence, regardless of size or price, the volume being ample to produce an arc under water, as in distended bladder, and the character of the current is such that it may be safely passed through a cystoscope.

TESLA CURRENTS AND OUIDIN AFFLUVE.—Separate windings are provided for each of these modalities.

OTHER MODALITIES.—The apparatus delivers perfect currents for Cataphoresis, Stimulation, Dehydration, Dessication, Coagulation (see *American Medical Journal*, September 18th, 1915, and October 26th, 1918), as well as for all forms of vacuum electrodes. Cautery and Diagnostic Lamp Control are also included, thus covering the entire treatment range.

Spark Gap

One of the most vital features of a treatment apparatus lies in the Spark Gap, and the Spark Gap mechanism employed in this apparatus has reached a high degree of perfection, having a wide range of gradual adjustment (not step by step) and delivering a very smooth current, free from muscular contraction. Adjustments are readily obtained to suit the volume and frequency of the current desired for any purpose. Its operation is extremely simple. It cannot be overheated by continuous operation, needs no attention beyond adjustment to suit conditions and will never wear out. Nothing comparable to this Spark Gap is available in any other make of apparatus. Fully protected by patent.

Type D carries the same liberal guarantee as all other Vulcan Coils—five years—is beautifully designed and finished and may fairly be regarded as indispensable to the modern physician or dentist.

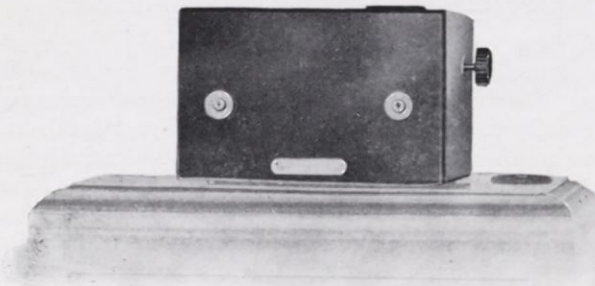
It is built to operate on Alternating Current, 110 volt, 60 cycle, but will be supplied for other voltage or cycle to order. On Direct Current it is necessary to interpose a Rotary Converter of Three-quarter Kilowatt capacity, preferably delivering 110 volt, 60 cycle current.

The equipment supplied with it consists of the usual Ball Terminals, Control Handles, Treatment Cables, Milliampere Meter, Connecting Cord for attachment to the lighting circuit, and Foot Switch. No special wiring is required.

Type D, Golden Oak or Mahogany.....	\$300.00
Special Finishes (extra).....	15.00

(Illustrated on front cover)

VULCAN



Treatment Units

Radical changes have been made in the construction of Treatment Units—the power increased and each unit provided with its own Spark Gap of the same character as that employed in Type D, except as for Treatment Unit No. 1, which employs the Spark Gap in the X-ray machine without detriment to same. A description of each unit will be found in the catalog. Prices as follows:

Treatment Unit No. 1.....	\$35.00
Treatment Units Nos. 2, 3, 4 and 5.....	50.00
Special Finishes (extra).....	5.00

Universal Unit

In response to a demand, we have created the Universal Treatment Unit, which delivers all modalities as in the case of Type D, shown elsewhere except Ouidin Affluve. It may be attached to any cabinet form of the Vulcan Coil, such as Type E, Type EE, or Type L, but operates under its own Spark Gap. It is provided with a Milliampere Meter, as well as with the customary Control Handles, etc., and a pair of Treatment Cables. Like all Units, it is finished in black enamel, except on special order.

Universal Treatment Unit.....	\$100.00
Special Finishes (extra).....	5.00

For the benefit of those who are not so fortunate as to own one of our cabinet coils from which to operate a Unit, we have provided a Base Unit, from which any Unit may be operated in the same manner as from an X-ray Coil. This contains the transformer, controller and all mechanism necessary for the perfect operation of any Unit. The physician will therefore be able to procure this Base Unit in conjunction with any Treatment Unit which meets his requirements, or the Universal Unit, which meets all requirements. Finish, black enamel. Cautery and Diagnostic Lamp Control are included.

Base Unit	\$ 85.00
Special Finishes (extra).....	5.00

(See illustration on back cover)



Use of High-Frequency Currents

Among the most valuable modalities are the D'Arsonval current, the Diathermy current and the Fulguration current for use through a cystoscope. These particularly may be regarded as bridging the gap between medicine and surgery and are daily saving many patients from operations, offering relief in many cases where even an operation fails to produce the desired result. We refer to such cases as Dysmenorrhea, Subinvolution of the Uterus, Chronic Congestion or Inflammation of the Tubes or Ovaries, Prostatitis, Neuritis, Atonic Conditions of the Stomach or Intestines, Torpid Liver, Pain or Stiffness of Muscles or Joints, Chronic Otitis Media, Catarrhal Deafness, Sciatica, Ankylosis, etc.

Auto-Condensation, accomplished by the use of the D'Arsonval current, has proven invaluable in the prevention and cure of Arterio-Sclerosis, Apoplexy, Brights Disease, etc., and is today the most certain known means for the reduction of high arterial tension, eliminating (oxidizing) toxic substances and increasing metabolism.

The Diathermic current is accomplishing remarkable results in the treatment of Ankylosed Joints, Rheumatism, Neuralgia, Sciatica and may also be used for the reduction of blood pressure, although the true D'Arsonval current is superior for this purpose. Very remarkable results have been reported in the medical press in the treatment of cancer by electro-dessication and electro-coagulation. The Diathermic current differs from others in passing directly from one electrode to the other, heating the tissues to as high as 140 degrees Fahrenheit, resulting in increased circulation and destructive action on bacteria and foreign growths. It is destined to be the most important of all the various modalities.

The Fulguration current has long been employed externally, but recently has come into general use as the best method for removing papilloma of the bladder, introducing it through the cystoscope. This method is in use in Johns Hopkins Hospital and many other leading hospitals. Its success is attested to by practically every physician who has tried it out. The advantages of this treatment are as follows: An anesthetic is unnecessary; the operation is performed by sight; there is little or no pain; there is but slight reaction; there is no hemorrhage; no ulcerated surface or cicatrix is left; the patient is not incapacitated; and the progress can be watched through the cystoscope.

Among other diseases which are now successfully treated by high frequency currents may be mentioned Abscesses, Acne Rosacea, Adhesions, Alopecia, Atrophic Rhinitis, Barber's Itch, Boils, Brain Fag, Bronchitis, Constipation, Chilblains, Carbuncles, Cervicitis, Diabetes, Eczema, Fistula, Frontal Sinusitis, Gleet, Gonorrhoea, Goitre, Hemorrhoids, Headache, Hay Fever, Incontinence, Impotence, Infantile Paralysis, Keloid, Laryngitis, Lucorrhoea, Lumbago, Mastoiditis, Menorrhagia, Metorrhagia, Moles, Moth Patches, Nervousness, Neuritis, Orchitis, Otitis, Pharyngitis, Proctitis, Pyorrhea Alveolaris, Pruritus, Ring Worm, Rodent Ulcer, Tic Doloureux, Tonsillitis, Trachoma, Vaginitis, etc.

The great English authority, Monell, in his "High Frequency Currents in Medicine," classes this as the greatest remedial agent at the command of the medical profession.

Numerous text-books on the subject are available and may be procured from any book concern. We recommend the following:

- Medical Electricity and X-Ray, *Tousey*.
- Electro-Therapeutics and X-Ray, *Martin*.
- X-Ray and High Frequency Currents, *Judd*.
- High Frequency Manual, *Eberhart*.



High-Frequency in Dentistry

GENERAL FIELD OF USEFULNESS.—High frequency currents are coming daily into more and more frequent use by dentists. They are employed in pyorrhea, in drying cavities, in devitalizing teeth, in sterilizing root-canals, in bleaching teeth, in abscesses, in locating devitalized teeth and for the relief of pain. The author is not a dentist, but has tried to give in this chapter a resume of current dental opinion and technique as gathered from various sources. Several dental electrodes are illustrated (No. 40—set of four).

PYORRHEA.—Pyorrhea early manifests itself by a slight reddening of the gums at the margins and a tendency to bleed on slight provocation. A large majority of patients having pyorrhea are anemic, and in these the gums, instead of being red, may have a yellow and discolored appearance and are apt to be flabby or receding instead of puffy. In the second stage of the disease pus appears, attacking first the peri-dental membrane. Later the bony socket of the tooth may be slowly eaten away or destroyed. The gums gradually recede and the tooth becomes loose in its socket and painful to the touch.

From this we can see at once indications for the employment of high frequency currents.

A French authority says that it is necessary "to destroy the microbe and suppurative state of the gums, correct the depleted nutrition in the issues and produce an over active phagocytosis and increase the index of leucocytic destruction. For this result one uses high frequency currents with the greatest success in the two forms, the affluve (spray) and the spark."

Cremeaux and Arnal (*l'Est Dentaire*, September, 1913) use the high frequency as follows: "One introduces the metallic fulguration electrode as far as possible between the loosened gum and the tooth, in order that the spark may reach all the recesses and purulent foci. During the operation, which lasts an average of a minute for each tooth, one sees the margin of the gum blanch and the pus bubble out at the neck of the tooth. When all of the recesses have been penetrated, the fulguration point is replaced by a small vacuum electrode, which is passed over the external and internal surface of the gums for about ten minutes."

They wait three or four weeks to note results before giving a second treatment, employing a rigorous antiseptic regime in the meantime, consisting in brushing with an alkaline powder night and morning and numerous rinsings with boiled water, etc. About a week after the treatment the patient massages the gums with the finger twice a day. In three or four weeks, if pressure on the gum shows presence of pus, the treatment is repeated; otherwise, the case is dismissed with instructions to keep up the massage of the gums and antiseptic care of the mouth. One to three treatments were required in the cases treated.

Dr. F. Morel (*Bulletin du Syndicat des Chirugiens-Dentistes De France*, September-October, 1910, January-February, 1911) makes use of medicaments in connection with the high frequency. He claims that the high frequency affluve renders mucous membranes porous and facilitates the penetration of medicaments and that the simultaneous application of the solution and the current produces an electro-chemic effect. He decomposes by the currents a solution of potassium bichromate, claiming that the base will be taken up by the diseased tissues.

After thoroughly removing the tartar from the teeth, he carefully irrigates with peroxide and evacuates all of the pus. Then he paints the teeth and gums with the following solution, using a spatula to get it up as far as possible around the roots:



Fluoride of Ammonia.....	1 gramme
Chloride of Ammonia.....	1 gramme
Chloride of Potash.....	1.5 gramme
Salicylate of Theobromine.....	1 gramme
Methyl Alcohol.....	50 centigrammes
Distilled Water.....	20 grammes
M.—Filter.	

This solution favors ionization and lessens the resistance of the tissues to porosity.

A pad is then soaked in a ten per cent aqueous solution of bichromate of potash and held over four teeth and a vacuum electrode held over this for about fifteen minutes, with close contact. He only treats four teeth at a time. In advanced cases he uses a metal point and carries a few sparks up into the infected canals.

The vacuum tube application is for cataphoric purposes, and any of the electrodes illustrated herewith may be used for this purpose.

He repeats this treatment every second day, sometimes giving three five-minute seances with eight minutes rest between. Usually four treatments produce a cure, occasionally six, seven or eight have been required. During the whole course of treatment the patient washes the mouth six times a day with the following solution, using half a glass each time:

Sodium Salicylate.....	10 grammes
Sodium Fluorosilicate.....	2 grammes
Distilled Water.....	1 litre

Dr. Irwin Jirka applies methyl salicylate in these cases, driving it in with the vacuum electrode. He treats for eight minutes every other day. Reports a number of cases cured in three to fifteen treatments. Hubbel uses the cataphoresis electrode first and then the ball pointed pyorrhea electrode to massage the gums for five or six minutes each, treating daily until improvement takes place.

DESSICATION, METALLIC IONIZATION AND PHORESIS.—I have been furnished with a translation of a paper by Dr. A. A. Nouel of Venezuela. This paper, read at the Dental Section of the Medical Congress at Caracas in 1911, is entitled "Dessication, Metallic Ionization and Phoresis of the Canals in One Sitting with High Frequency Currents." The author's methods seem to be distinctly original. He speaks of using at first a coil and resonator and with this used iodide of potash because this chemical absorbed the ozone when the current was introduced into infected root canals. After four years of experimenting he found a method and a machine that enabled him to get simultaneously metallic ionization and thermopenetration.

He says: "I have used the . . . high frequency coil, but even though the machine is just as efficient as other more powerful coils for fulguration; with vacuum electrodes and with the ozone inhaler, in the dessication of the canals, the current is found to be of too pronounced faradic character.

"I have also used several other types of high frequency machines, and found the one most suitable giving a smooth, high frequency current without any faradic sensation, such as is used in diathermy. In this case there will be felt by the patient nothing but a progressive increase of warmth, if there is no continuity

of solution. If there is one, no matter how small, beside the progressive thermic increase, there will result an ionization of the canal in which a small arc will be established. This arc is formed between the walls of the canal and extends the full length of the electrode.

"The electrode is connected by means of a flexible and well-insulated metallic conductor to the right-hand 'auto-condensation' terminal. The electrode handle may be about ten centimeters long, and made of either fine wood or ivory, with a metallic point similar to that of the broach holders employed in dentistry. Small pieces of either copper or zinc wire, as required in each case, will be fitted to the handle. In some cases, where no abscess is formed, I believe the copper is superior to the zinc electrode. To substantiate this statement, I have observed that after a diseased spot has been treated with a copper electrode no pain is felt if that spot is touched.

"Before the current is turned on, it is better to thoroughly dry the cavity leading to the canal in order that the sparks may not be diverted, but will confine themselves to the length of the wire and walls of the canal throughout its length.

"I firmly believe that the metal, during its ionization, is cataphorically introduced into the dental canals through the apex, and that once in the presence of the salts that form the composition of the blood, a chloride is formed, this being the reason why the peridentium and adjacent parts are irritated when zinc is employed. A zinc electrode is beneficial in case of an abscess on account of the chemical composition formed by the zinc.

"The ionized and ozonized copper is also introduced into the dental canals by means of the cataphoric action of the current, thus forming a deposit of oxide or bi-oxide of copper, which will permanently act as a disinfectant. I shall later on explain the method through which its action is brought about.

"Although a tooth may be profoundly infected (it is understood that I refer to a tooth without pulp) with inflammation of the peridentium, with an abscess or fistula, it can be 'stopped' in one sitting, fearing no ulterior difficulties, if this novel method is employed.

"The technique is very simple: After the pulp chamber is open it is to be moistened with a small quantity of trikresol and iodoform or trikresol and formalin, after which the electrode is applied, being held at a distance of a half to one millimeter and moving it over the surface until the cavity is dry. A broach is then employed, being operated into one-half the length of the canal, drying with cotton and compressed air, not too warm; then the copper wire is introduced and the current turned on for five minutes. The broach is now used again, this time reaching to the apex. The canal now being perfectly freed from the bits of pulp and other foreign bodies, is now thoroughly dried with cotton inserts. The copper electrode treatment is then repeated for five minutes, and, after this time has elapsed the tooth may be 'stopped.'

"The great efficacy of this modality is supported by the fact that the dental canals constantly maintain a certain humidity, which serves as an easy conductor for the introduction of the ionized metal, and permits the easy access of the flowing-in process of the ozone while being dried by the thermopenetration, which goes to complete the oxidation and the consequent coating of copper, leaving it permanently deposited in a state of oxide or bi-oxide of copper."

ABSCESSSES.—The dental technique advised by some operators consists in ten or fifteen-minute applications of a mild current in contact with the cheek, followed by the use of one of the cataphoresis electrodes containing cotton saturated

with iodine and aconite solution. Duration of this application about eight or ten minutes. Jirka uses methyl salicylate and also speaks of formo-cresol, which I infer is used with the cataphoresis electrode.

Drs. Barber and Van Valkenburg have reported a case where the copper wire was employed in treating an abscess.

POST-OPERATIVE PAINS.—For the pains and soreness existing after extraction or after setting bridges or crowns, the use of cataphoric electrode with any suitable solution has been recommended, followed by application of mild current with the ball-pointed pyorrhea electrode.

From the above it will be understood that the most effective method of ionization — the ionization of the future — is performed with high frequency currents.

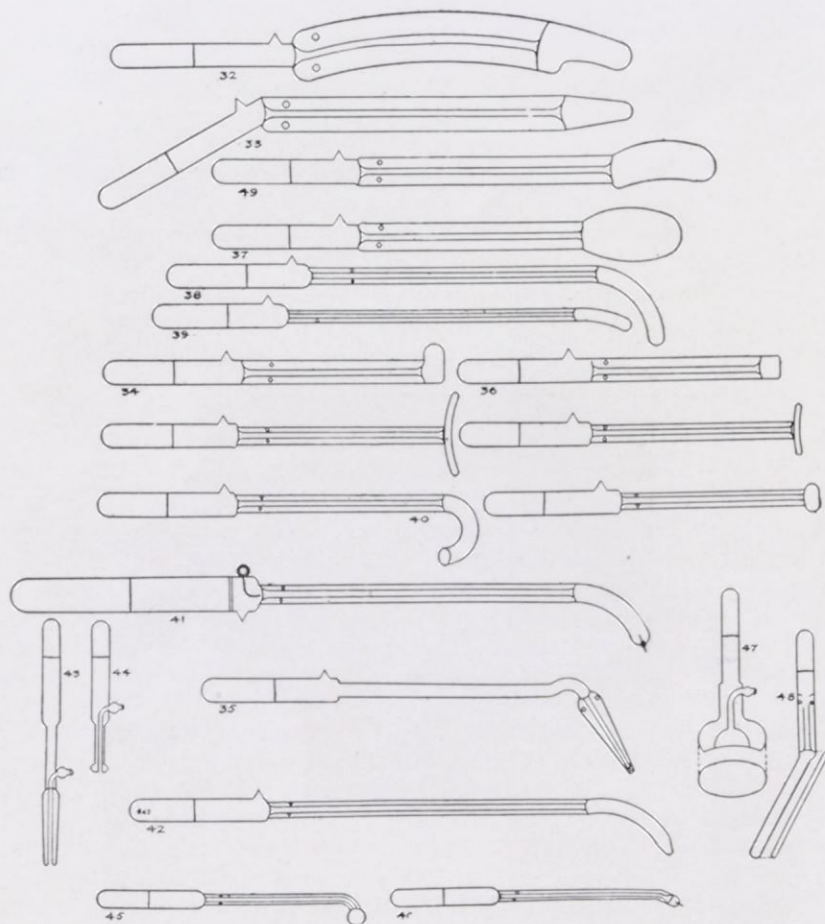
STERILIZING ROOT CANALS.—Another method of sterilizing root canals is the touching of the pointed dental electrode (carrying current enough for a half-inch spark) to a broach which has previously been inserted in the canal. The broach carries the current into the canal. The D'Arsonval current may be used the same way.

BLEACHING THE TEETH.—Hubbel says: "Place your bleaching solution on a fibre of asbestos or cotton, placing it in the cavity of the tooth and applying the point of the electrode directly against this fibre, the cataphoric action of the current driving the solution into the dentine, getting results much quicker than from ordinary measures. Care must be taken that the apex of the tooth is first stopped with guttapercha so that there is no danger of the solution being forced through the apical foramen."

DIAGNOSING LIVE FROM DEAD PULP.—The pointed dental electrode is used with a mild current, and the point applied to the cusp of the tooth. If the pulp is alive the patient will feel the current; if he does not, the tooth is devitalized.

OBTUNDING SENSITIVE DENTINE AND DEVITALIZING TEETH.—"In obtunding sensitive dentine, a small crystal of carbolic acid is placed in the cavity and the pointed electrode is used in the generator, the current being toned down as mildly as possible. The point of this electrode is then placed against the cavity and held for from thirty to fifty seconds. Now, test the cavity, and if still sensitive, use the current for a half minute longer. You may now start to excavate, and if the one application of the carbolic acid does not last sufficiently long to complete the operation, place another tiny crystal in the cavity and apply as before. In the majority of cases, operations have been rendered entirely painless by this method of treatment.

"In devitalizing the teeth a small crystal of novocain is placed in the cavity, or, if no cavity is apparent, cut into the enamel with a very small stone, placing a crystal of novocain therein and dipping the tip of the electrode in adrenalin. Apply the high frequency current to this with a very mild flow of current the same as in obtunding sensitive dentine, using the current for about one minute. Drill into the tooth until as close to the pulp cavity as possible without unnecessary pain, and again apply a crystal of novocain and use the current for about a minute to a minute and a half, and in most cases it is then possible to cut into the pulp cavity. If the nerve is then sensitive, pressure anesthesia is advisable. The greatest trouble that we find in getting success from this treatment is the inability of the operator to successfully control his current, as it takes considerable practice in order to get the proper amount of stimulation. But, after some experimenting, it is possible to get results in the majority of cases."—Hubbel.

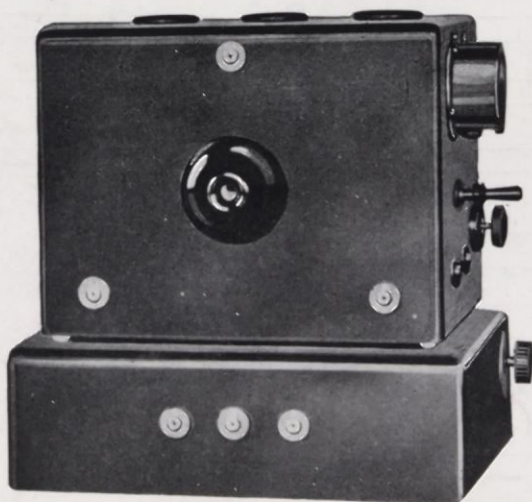


Vacuum Electrodes

Illustrated are the most common forms of Vacuum Electrodes, with the exception of the Surface Electrode, which is not made in insulated form. Many other forms of electrodes are available, both plain and insulated.

No. 32.	Vaginal Electrode.....	Plain.....	.75	Insulated.....	\$1.50
No. 33.	Rectal Electrode.....	Plain.....	.75	Insulated.....	1.50
No. 34.	Post Nasal Electrode.....			Insulated.....	1.50
No. 35.	Ear Electrode, straight.....			Insulated.....	1.50
No. 36.	Throat Electrode.....	Plain.....	.75	Insulated.....	1.50
No. 37.	Tongue Electrode.....			Insulated.....	1.50
No. 38.	Throat Electrode, curved.....	Plain.....	.75	Insulated.....	1.50
No. 39.	Nasal Electrode.....	Plain.....	.75	Insulated.....	1.50
No. 40.	Dental Electrodes, each.....			Insulated.....	1.50
No. 41.	Judd's Cautery Electrode.....			Insulated.....	2.50
No. 42.	Urethral Electrode.....	Plain.....	.75	Insulated.....	1.50
No. 43.	Soules Ear Electrode, original.....				2.50
No. 44.	Soules Ear Electrode, improved.....				2.50
No. 45.	Soules Eustachian Electrode.....				1.50
No. 46.	Soules Tonsil Electrode.....				1.50
No. 47.	Soules Eye Electrode.....				2.50
No. 48.	Soules Nasal Electrode.....				1.50
	Plain Vacuum Surface Electrode.....		.75		

VULCAN



Universal and Base Unit

H. A. MASAC
Southern California Distributor
401-2 AUDITORIUM BUILDING
LOS ANGELES, CAL.