



GETTING THE MOST OUT OF TIME A Textbook and Catalog of An Automatic Organizational Telephone System, Circa 1921

An interesting advertising piece, provided a catalog of the current Select-O-Phone products and additionally a how it works tutorial. A 26 page printed booklet originally these scans were produced from xerographic second generation copies and unfortunately the copier had scratches on the drum which caused missing lines on every page.

Created from scans furnished by Tom Adams

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Antique Telephone Collectors Association US
Telephone Collectors International US

www.selectophone.com
www.kelloggtelephone.com

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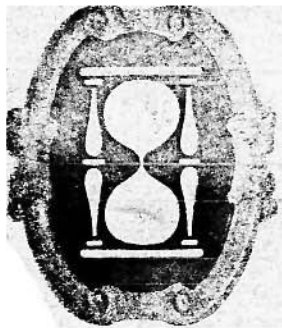


www.telephonecollectors.org



www.atcaonline.com

GETTING THE MOST OUT OF TIME



The SELECT-O-PHONE

GETTING THE MOST OUT OF
T I M E

A TEXTBOOK AND CATALOG
OF
AN AUTOMATIC ORGANIZATIONAL
TELEPHONE SYSTEM

DEvised FOR GREATER EFFICIENCY IN
INTER-DEPARTMENTAL COMMUNICATION

THE SELECT-O-PHONE

for

Commercial and Industrial Institutions, Govern-
ment, State and City Institutions, Printing Plants,
Administration Buildings, Private Bungalows, Offices,
Libraries, Factories, Lumber Yards, Docks, Mills,
Mines, Private and Public Schools
and Colleges

SCREW MACHINE PRODUCTS CORPORATION

PROVIDENCE, R. I.

THE SELECT-O-PHONE

An Automatic Organizational Telephone System

The Select-O-Phone System

The Select-O-Phone is a full automatic telephone system, especially developed to serve organizations requiring from five to fifty-five telephone stations, all within one building, or distributed among several buildings, and to supply special service features of utmost organizational value.

The Select-O-Phone As An Aid To Business

The natural result of a Select-O-Phone installation is an increase in valuable inter-office communication. The delays occasioned by putting inter-office calls through a manually operated switchboard create a hesitancy to make such calls on the part of an organization, or individuals therein. As a result, judgments are made and opinions expressed without the advantage of the adequate knowledge which could be obtained through inter-office calls. When such calls can be made, as they can easily be made through the automatic Select-O-Phone, executives and employees know that within a known time limit any individuals within the organization, approachable by telephone, can be reached whether at or away from their desk or office.

This means that once the Select-O-Phone is installed the element of impatience with an uncertain time-consuming problem of finding a man, to give or secure information or instructions, through a manually operated switchboard is removed, so that it no longer acts as a psychological barrier to the accomplishment of business. The Select-O-Phone speeds up the transmission of human thoughts by fostering a "Do It Now" psychology as against the "I'll do it later" or "I'll step in and see him later" interrupting thought created by the delays of a manually operated switchboard through which both inside and outside calls must be handled.

Select-O-Phone Service

The Select-O-Phone is more than merely a means of inter-communication;—it provides continuous Automatic Telephone service, day and night, without an operator, and in addition—

- The Lockout or Secrecy feature* permits conversations to be carried on in privacy; no third party can listen in.
- The Conference feature* permits three or more parties to engage in a secret conversation or conference without leaving their desks.
- The Executive right-of-way feature* permits the chief to reach any station at any time whether it is busy or not.
- The General Call, or "paging" feature* finds your man when he is away from his usual station.
- The Watchman's Call* enables watchmen to quickly locate each other and secure help in an emergency.
- The Fire Alarm feature* renders every Select-O-Phone an emergency fire alarm station.

All of the features enumerated above, and many other features, are operated from the Select-O-Phone dial, identically the same at every telephone station, and over the same single strand of triple wire running to each telephone.

A feature of the utmost value in the Select-O-Phone is its ability to **Unlimited Simultaneous Service** handle simultaneously all of the calls which may be initiated. All stations may be in use at the same time, in pairs—on conference—on General Call—each party carrying on his own business independently, without interfering with, and without interference from others.

SELECT-O-PHONE FEATURES

**The Conference
Feature**

Parties at any three or more stations may engage in a secret general conference or discussion by proceeding as follows: The first party calls a second, the second calls a third, etc., until all those desired are parties to the connection. The conference is carried on privately, secure from being overheard by persons outside the group; the last called party alone can add a new member. Of value in calling an impromptu conference between widely separated offices to quickly dispose of pending business matters without the necessity of the parties leaving their desks.

**Lockout and
Busy Feature**

Stations in use, both calling and called, are automatically isolated from the remainder, and may converse as on a private line. A third party calling either station is "locked out," a hum in his receiver denoting that the called station is "busy." Replacing the receivers at the stations in use instantly restores them to service.

**Executive Right-
of-way Service**

In some organizations it is essential that calls from certain stations take precedence over all other calls, thus giving executive business right of way over routine business. Any one or more stations may be equipped before shipment with a "master selector," permitting such stations to connect at any time with any station, regardless of whether it is in use or not.

**General Call
Service**

The General Call or "Paging" service provides a ready means for quickly finding a party who may be away from his usual station. Communication is at once established with him wherever he may be and much valuable time saved which is otherwise lost in fruitless search.

A signal for the wanted party may be sent from any Select-O-Phone and is sounded on an auxiliary signalling system throughout the premises; the wanted party, upon hearing his signal, replies from the nearest telephone, completes his business on the spot, and proceeds on his way without loss of time.

To illustrate its use—The manager in walking through the plant discovers a condition he wishes to bring to the immediate attention of the superintendent. Not knowing where the superintendent may be, he steps to the nearest Select-O-Phone, turns the dial to "Call" and rings the proper code—say three short rings on the General Call. The superintendent, upon hearing his call, answers from the nearest Select-O-Phone by turning his dial to "Ans.," pressing the button, and the business is disposed of at once, although neither party knows where the other is located.

General Call service may or may not be included in the original installation, but provision is made in every standard switchboard for its installation at any time (see page 22).

SELECT-O-PHONE FEATURES

**Watchman's
Call**

This service contemplates special code signals on the General Call system and enables a watchman or caretaker to quickly locate and secure help from others in case of fire, burglary, or other emergency.

Fire Alarm

The General Call signals may be employed for sounding a special alarm code in case of fire. Where it is not desirable to use the General Call circuit for this purpose, a separate circuit similar to the General Call may be used to operate signals differing from those on the General Call circuit, such as steam or air whistles, etc.

**Party Line
Service**

One or two extension telephones may be connected to any one or all lines, making two party or three party lines, and doubling or tripling the telephone capacity of the system selected. To ring a station on your own party line, merely press the ringing button; the dial need not be operated.

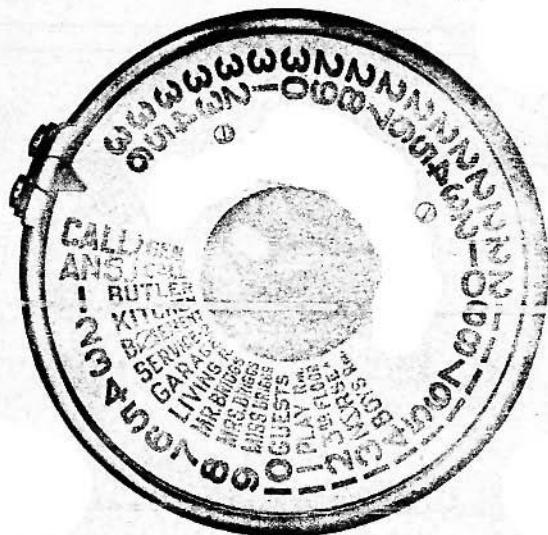
Conversations between stations on a party line are as private as between stations on single station lines.

**Extension Signal
Service**

Where a telephone is located in a noisy place, the regular bell may not be sufficiently loud to be heard, in which case an extension signal sufficiently loud to be heard in that particular location may be installed. Any of the signalling devices listed under General Call Signals (page 23), from small bells to motor driven horns, may be used, but must be specified for "Extension Signal Service."

DIRECTORY DIAL

(Actual size)



Directory dial plates may be supplied at an extra charge with any system having 36-line dials and are preferable in many cases to the numbered only dial.

SELECT-O-PHONE SERVICE FEATURES

Following is a recapitulation of Select-O-Phone service features which experience has shown to have unusual organizational value. Each individual feature merits your careful consideration.

Select-O-Phone Service—

Is always alive and available at all hours of night or day, every minute of the year, without a switchboard operator.

Is automatic, man-to-man service and is not hampered by manual supervision.

Connects you to a wanted station in four seconds.

Is unlimited as to the number of calls which can be made simultaneously. Everybody served the instant the service is wanted.

Permits of direct successive calls from a station without waiting for an operator to change connections.

Permits of secret conversations.

Provides a conference service permitting any three or more parties to hold a general secret conversation.

Permits simultaneous connections from many stations without interference, each securing connection to the party called unless the called station is busy.

In many cases saves an operator's salary.

Provides clear, distinct, amply loud transmission of speech, of a purity of tone unexcelled by any system in existence.

Prevents all stations (except those having executive right-of-way service) from obtaining connection to a line in use, and notifies the calling party by an audible buzz that the called line is busy.

Combined with the General Call, enables you to locate a party who may be away from his usual station, in the shortest possible time, wherever he may be on the premises, and to establish a private talking connection with him.

Enables your watchman or caretakers to quickly find and converse with each other directly, without time-wasting search, — added protection in case of fire, burglary or accident.

Can be used as an auxiliary fire alarm system, or for special signalling purposes.

Operates equally well whether stations are all in one building or in many buildings scattered about the premises.

Permits of code signalling, to call a particular one of several who may answer an individual station call.

Permits of ringing between stations on a party line, as between an executive and his clerk or stenographer, by merely pressing the ringing button and without operating the dial.

Enables you to call at any time without waiting your turn, regardless of the fact that many others may be calling at the same time.

FEATURES OF SELECT-O-PHONE APPARATUS

Apparatus Characteristics The service features enumerated upon the opposite page are embodied in apparatus possessing certain exclusive characteristics which make for extreme simplicity of installation and maintenance.

We were fully alive to the fact that to obtain and hold a market for the Select-O-Phone, it must be built a great deal better than such apparatus is usually built; must be capable of being shipped to any part of the world, installed and used under every conceivable disadvantage, and give continued good service with a minimum amount of attention.

Interchangeability of Units We have endeavored to anticipate, as far as possible, every cause for trouble, and when trouble exists (and it will exist at times in any apparatus) the interchangeable unit idea, incorporated into the Select-O-Phone apparatus to a marked degree, renders it an easy matter to locate the fault by a few simple standard tests, and to replace the faulty unit with a spare unit, the faulty one being returned for repair or adjustment to our nearest service station where the repair or adjustment can be done better and at less cost than by less experienced hands.

Flexibility of Apparatus The flexibility of the Select-O-Phone apparatus is such that you need not be put to the initial expense of anticipating your possible future requirements. This has been anticipated for you fundamentally in the Select-O-Phone apparatus. You may install as few as five Select-O-Phones, and by our unit system of expansion increase your system a single station at a time up to fifty-five stations, and the addition of party lines permits of still further increase; and moreover, so simple is the apparatus that your own electrician, or a local electrician or contractor, by following our printed instructions, can easily install and maintain the system, add extensions and the like, without special knowledge of telephony.

Simplicity of Line Wiring The telephone line wiring from each Select-O-Phone to the automatic switchboard is of the simplest character: merely a single strand of standard triple conductor telephone wire. All complications such as cable, junction boxes, etc., usually encountered in interior telephone systems, have been eliminated in the Select-O-Phone system. This makes it possible to keep the system up-to-date to meet changing requirements. At negligible expense additional stations may be added, stations moved, or the entire system re-installed in new quarters.

P A T E N T S

United States

1,280,096

1,280,097

1,265,398

Great Britain

118,691

118,478

118,805

118,889

France

486,970

486,971

486,972

Canada

179,339

179,454

179,814

Argentina

14,326

14,327

14,328

THE SELECT-O-PHONE ITS ECONOMIC ADVANTAGES

Cutting Costs

Upon some one in your organization falls a task rendered necessary by keen competition; of systematizing the component parts of your organization to function individually and collectively with the highest efficiency; cutting out dead wood and providing labor-saving methods and devices.

That the Select-O-Phone effects savings entirely disproportionate to its cost has been amply demonstrated in many institutions, and the man upon whom rests the responsibility of economic management will find the Select-O-Phone his most valuable ally in cutting costs.

Manual

vs.

Select-O-Phone Service

A survey of interior service problems and their relation to the facilitation of business, amply establishes this fundamental fact; the interior and outside telephone service present two different problems—have nothing in common—and can only be combined in the same manual or automatic switchboard to the detriment of one service or the other, or both. Divorce the two systems, put the interior service in the hands, as it were, of a separate automatic machine, and unthought-of economic possibilities are opened up.

An operator can handle but one call at a time; others are wasting time impatiently waiting their turn. The Select-O-Phone handles dozens of calls at the same instant—nobody waits. A switchboard operator is a barrier to efficient service. Select-O-Phone service is instantaneous, man-to-man service. When the outside and inside service are combined in the same automatic switchboard, the most used (therefore the most valuable) interior service interferes with the most expensive express service—the outside lines. One service must be subordinated to the other. The ideal service is given by the separation of the two, thereby giving a choice of service according to the relative importance of the matter at hand.

An Ideal Installation

An installation ensuring the maximum efficiency in telephone service, embraces a manual switchboard with such rented extensions as may be necessary for purely outside connections, and a separate Select O-Phone automatic system for interior service. The operator, relieved of the burden of interior calls, is free to give better service to your executives and customers; while the interior service, relieved of the burden of an operator, is rendered infinitely more efficient. In many cases, the operator may be dispensed with entirely.

Dual System Advantages

Your Executive, Sales Manager, Purchasing Agent, replying to an outside call, can, while holding the outside connection, seek needed information inside via your *separate* Select-O-Phone system, and complete his business quickly—on the spot.

Again, employing the Conference feature, your Executive receives a long distance call relative to the delivery of an order. Not having the information immediately on hand, he calls the Superintendent, using the *separate* Select-O-Phone. The Superintendent, *without disconnecting from the Executive's 'phone*, calls the Assembling Room foreman for information and is told the order can be shipped that day provided certain parts are forthcoming from another department. The foreman calls that department without disturbing the connection to the Superintendent or the Executive, and is assured of the delivery of the needed parts. The Executive, having listened to the entire procedure, is in possession of all the information in the shortest possible time and can give his toll call patron a decisive answer on the spot.

SELECT-O-PHONE APPARATUS

The simplicity of the apparatus will be evident from the following:

Each station comprises three elements:

1. *The telephone*, having a calling dial.
2. *The line*, a single three strand telephone wire.
3. *The automatic selector*, in the switchboard.

To install an additional station, purchase a telephone of the desired type and a selector. Slide the selector unit into the next vacant position in the switchboard; run your line from adjacent connectors to the new telephone location, mount the telephone where wanted, and connect in your line, and the telephone is ready for use. Each station is a duplicate of every other station.

A complete Select-O-Phone system is made up of five necessary factors:

1. *The automatic central switchboard.*
Made in three sizes, illustrated on pages 10 and 11.
2. *The telephone instruments.*
Five standard types are illustrated on pages 13, 14 and 15.
3. *The telephone line wiring.*
The wiring is done by your electrician or local contractor. (See page 16. Also schematic wiring plan, opposite page.)
4. *The storage battery.*
To supply current for operating the system (see page 17).
5. *The battery charging outfit.*
To keep the storage battery charged.
(See pages 18, 19, 20 and 21.)

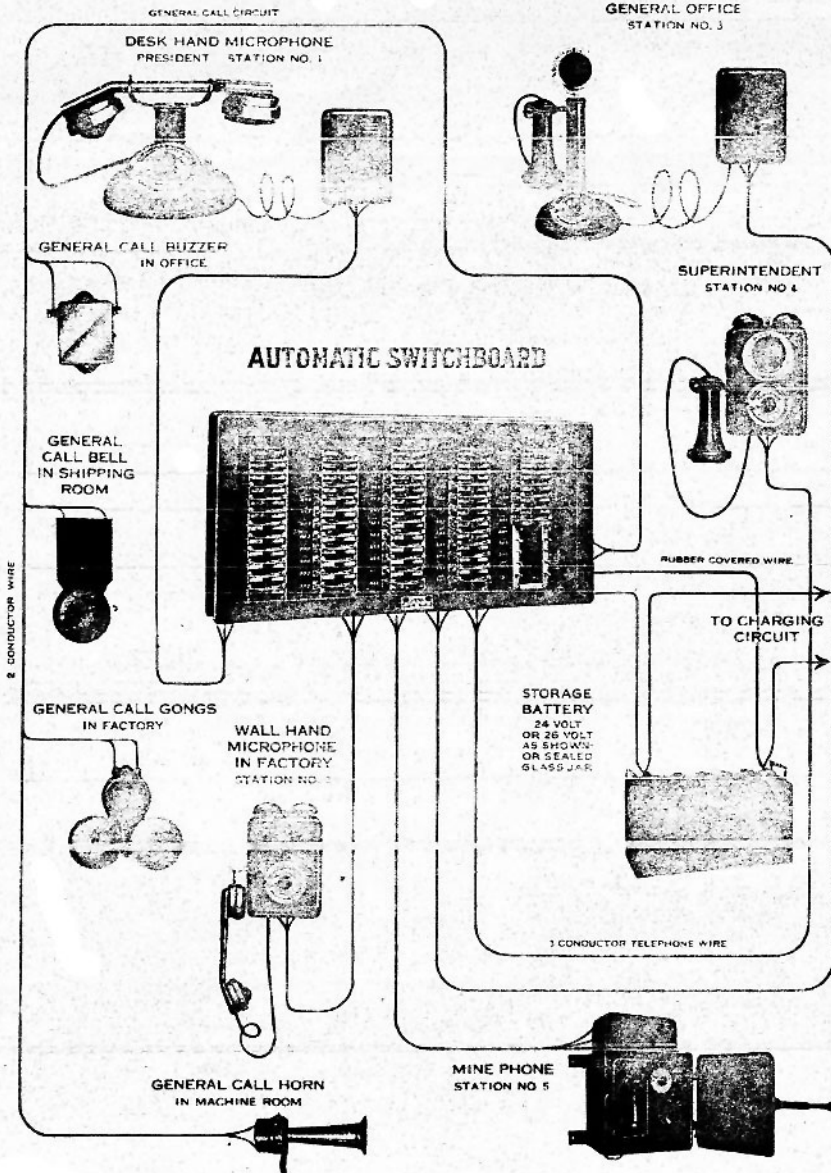
The following items are optional:

- All General Call signalling apparatus.
- Master Selectors for Executive right-of-way service.
- Directory dial plates.
- Extension signal apparatus.

In order to visualize the relation of the above elements to one another, refer to graphic illustration on opposite page.

A MODEL SELECT-O-PHONE LAYOUT

Illustrating the method of wiring and the relation of the principal units to one another

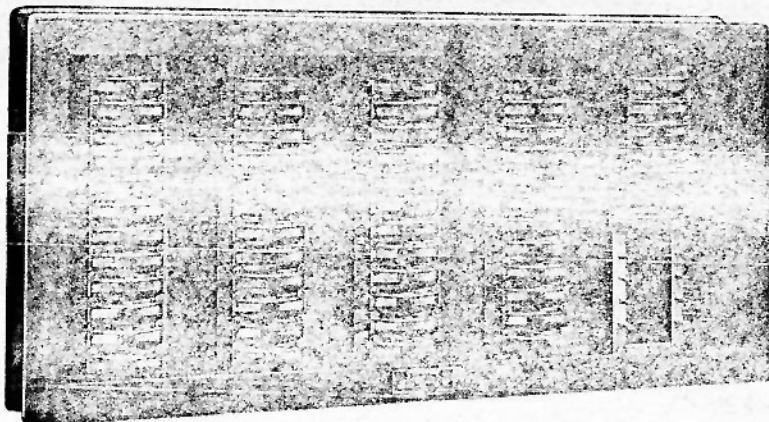


AUTOMATIC SWITCHBOARDS

Type M-55 (55 lines ultimate capacity)

Dimensions: width 45 in.—height 23¼ in.—depth 10 in.

Dimensions between mounting holes: width 41 in.—height 19¼ in.



Made in Three Sizes: 55, 36, and 12 Lines Ultimate Capacity

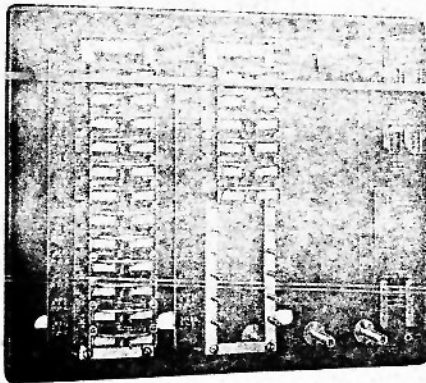
Cabinets

Cabinet work is of selected, well seasoned hard wood with standard dull black finish, and will harmonize with any surroundings.

The cabinet comprises a strongly built back-board designed to be securely mounted on a convenient wall, and a removable glass front cover. On the back-board is mounted the selector mechanism, busy tone, battery terminals, general call relay, etc. With the cover removed, all the mechanism is readily accessible.

Racks and Selectors

The selector racks are removably mounted in the switchboard and the selectors (one for each line installed) are removably mounted in the selector racks. Each selector rack has a capacity of twelve selectors.



Type M-36 (36 lines ultimate capacity)

Dim.: width 29 in.—height 23¼ in.—depth 10 in.

Dimensions between mounting holes: width 25½ in.—height 19¼ in.

Flexibility

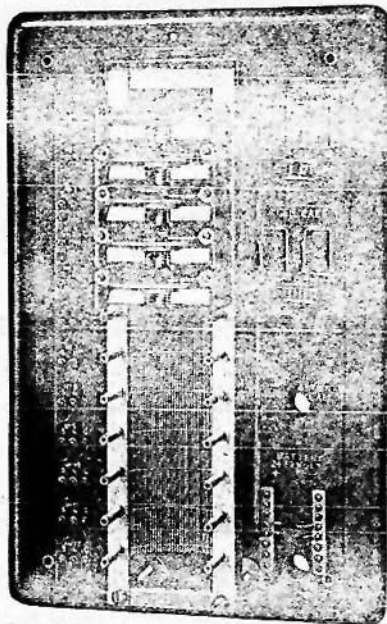
The M-36 switchboard, with cover removed, is shown equipped with two selector racks and eighteen selectors; six more selectors may be added to the second rack, one by one, as more telephones are needed. If growth beyond this is required, a third rack is purchased and mounted in the third position, now vacant in the switchboard, and twelve more stations may be added as extension of the service demands.

AUTOMATIC SWITCHBOARDS

Type M-12 (12 lines ultimate capacity)

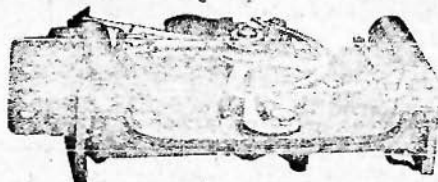
Dimensions: width 14¼ in.—height 23¼ in.—depth 10 in.

Dimensions between mounting holes: width 10¼ in.—height 19¼ in.



The Automatic Selector

Standard and interchangeable in all systems.



Each line installed has an individual selector in the switchboard. The selector operation is controlled by electrical impulses sent out over the line wires by the telephone dial, and connects your line to the line whose number you set up on your dial.

The M-12 switchboard shown with cover removed has selectors for five lines installed. To add a sixth telephone, slide a selector over the pair of pins directly below the fifth selector, run your three conductor line wire from the three screw connectors at the immediate left of the new selector to your new telephone, and the station is ready for use. The selector is standard and interchangeable in all systems.

Advantages of Interchangeable Unit Construction

The selector rack shown in the M-12 switchboard above is identical and interchangeable with the first position rack in M-36 and M-55 switchboards. If you outgrow the capacity of your M-12 system, purchase our M-36 switchboard with a rack installed in second position. Remove your rack with its twelve selectors from your old board and slide it into place in the first position in the new board and you have twelve vacant positions in the new second position rack for additions to the service. A third rack may be added when necessary.

If your M-36 switchboard is filled, and expansion is necessary, your three racks of selectors may be installed in an M-55 switchboard, thus permitting growth up to 55 stations.

As all of the electrical connections are made by contact jacks when the various units are slid into place, you have no wiring or soldering to do. The advantage is obvious. You purchase the minimum amount of apparatus necessary for your immediate requirements without limiting or hampering your growth, and you may add a single station at a time up to 55 stations. Even then, by using party lines, the telephone capacity of the system can be doubled or tripled.

THE SELECT-O-PHONE DIAL

(Three-quarter size)



Standard 36-line dial



Standard 55-line dial

The Dial

Each Select-O-Phone instrument is equipped with a dial as illustrated above. Standard dials are made in two capacities; for 36 and 55 stations. All dials are interchangeable in all Select-O-Phone instruments. The numbered dial plate is removable and special directory dial plates may be substituted on the 36-line dials. A sample of these plates is shown on page 4.

Its Use

The dial enables the Select-O-Phone user to automatically call any Select-O-Phone station; to signal and to answer on the General Call; to establish a Conference, etc.

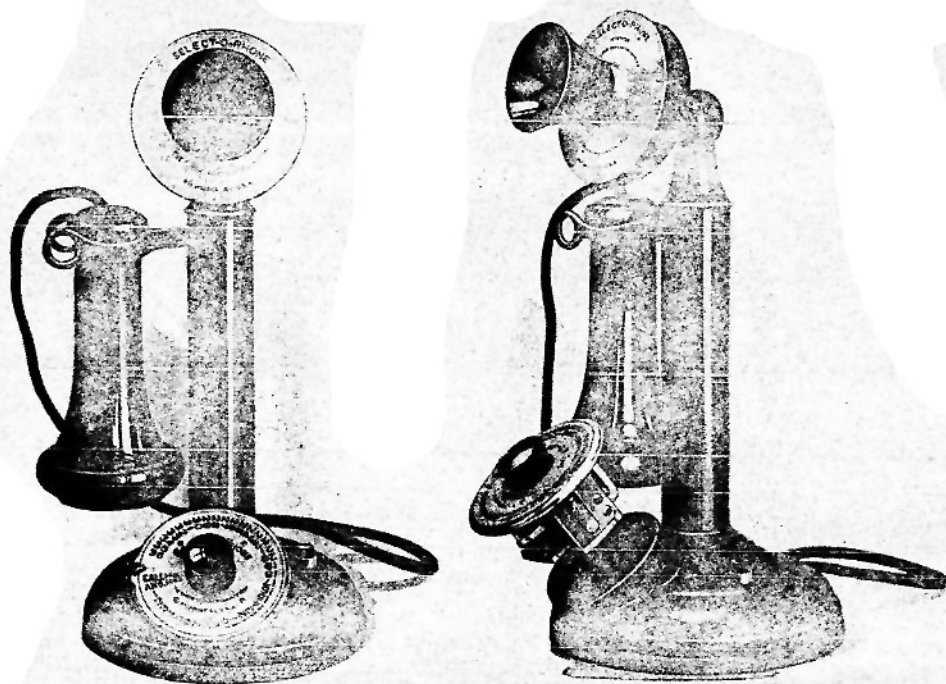
Operation

To make a call from any Select-O-Phone instrument, turn the dial by means of the knob until the number of the wanted station (or name of wanted party if directory plates are used) is under the indicator, then remove the receiver, whereupon the dial will quickly run back to normal position and automatically establish connection to the station called. Pressing the ringing button on the telephone instrument rings the bell at the called station as many times as desired, and the wanted party replies in the conventional way. Upon replacing the receiver, disconnection is instantaneous.

Party Lines

In calling a station on the same line as your own (party line), the dial is not operated at all; simply press your ringing button, lift your receiver and await a reply. Handy for an executive to signal his clerk or stenographer.

STANDARD DESK INSTRUMENTS



Desk or Table Type Select-O-Phone

The standard desk instrument includes a pressed steel bell box (not shown above, but see page 9) containing the bell and terminals to which the line wires are connected, and six feet of flexible desk set cord between the bell box and telephone.

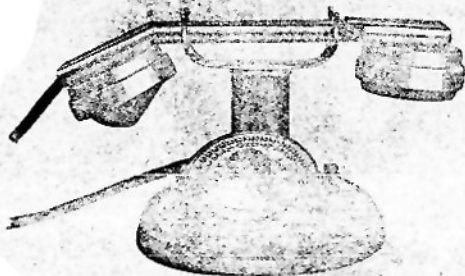
The instrument is finished in dull black enamel with heavily nickeled fittings and, except for the calling dial, is practically identical with the standard city service telephone.

The operation of the dial is described on the opposite page. The ringing button in the base, besides being used to ring the bell at a called station, is used for code signalling and for sounding General Call signals when the call service is used.

The dials are built in self-contained units and are interchangeable in all types of instruments.

HAND MICROPHONE INSTRUMENTS

Desk Type Hand Microphone



In this type instrument (which is the type most used abroad) the transmitter receiver and ringing button are combined in a convenient hand set, which offers many advantages over the ordinary desk telephone. With cord of ample length, a conversation may be carried on while sitting or standing, in a comfortable position, with one hand free for writing, and without touching the base of the instrument. Of value to the busy executive.

The set includes the bell box (not shown) containing the bell and terminals to which the line wires are connected.

Finish

The finish is a dull black enamel and heavy polished nickel, and the set is of more

elegant appearance than the standard desk instrument.

Operation

Turn the dial to the number wanted, lift the hand set from the cradle, and push the

ringing button in the handle of the set conveniently located under the thumb. The button in the base of the instrument is only used for signalling extension phones on your own line (party line).

Wall Type Hand Microphone

The hand set is identical with that supplied with the desk instrument, and its operation is the same.

This set is in many cases preferable to any of the other types, as the steel box containing the dial, bell and line terminals is designed to be mounted on a wall within easy reach of the user, and is therefore off the desk and out of the way.

Preferable to a standard wall set when used by persons of different heights, as its position on a wall is immaterial; and also in places where machinery produces an excessive vibration of walls or partitions, as the hand set containing the receiver and transmitter is in the hand and free from vibration when in use.

The finish is dull black enamel and polished nickel.



Dimensions: width $15\frac{1}{16}$ in. — height 7 in.
—depth $2\frac{1}{2}$ in.

Dimensions between mounting holes:
width $4\frac{1}{8}$ in. — height $5\frac{1}{8}$ in.

STANDARD WALL and MINE TYPE INSTRUMENTS

Wall Type Select-O-Phone

Designed for mounting on a wall or post in the conventional manner. The operation is the same as the standard instrument.

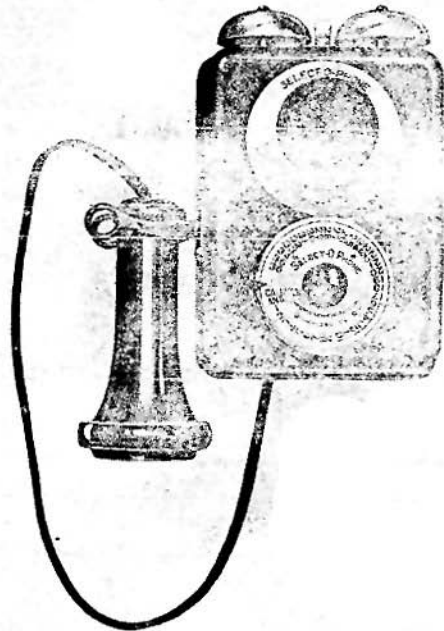
The telephone box is of pressed steel, finished in dull black enamel and polished nickel, and contains the dial, transmitter, bell, and line terminals.

Mine Type Select-O-Phone

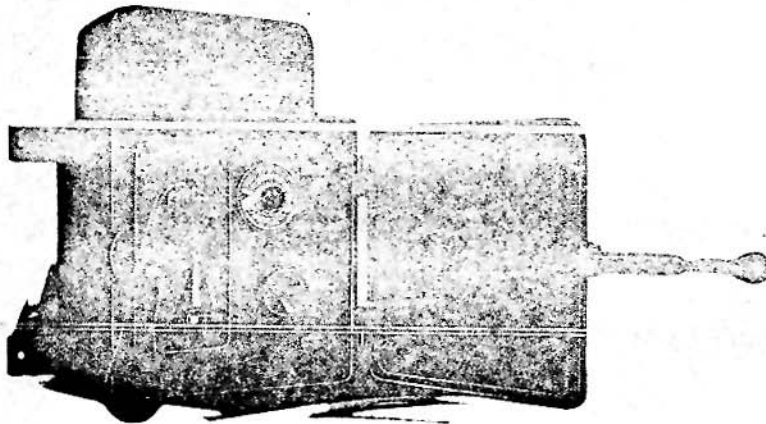
This type is designed especially for use in mines, chemical plants, railroad yards, docks, or wherever a telephone is exposed to weather, extreme dampness or chemical fumes.

All working parts are enclosed in a cast iron moisture proof box with an iron door closing against a gasket, and having an easily operated self-locking latch. All wiring and cords are moisture proof.

The finish is dull black enamel.



Same dimensions as Wall Hand Microphone



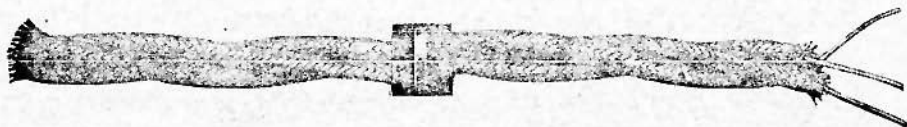
SELECT-O-PHONE LINE WIRING

The line wiring for each Select-O-Phone station is exceedingly simple, and can readily be installed by your own electrician or handy-man by following our printed instructions; or may be done if preferred by your local electrical contractor.

We carry at all times a large stock of the various kinds of wire used under various conditions, and can almost invariably make more prompt delivery than can the average stock house, and generally at a saving to you, and insure you better quality.

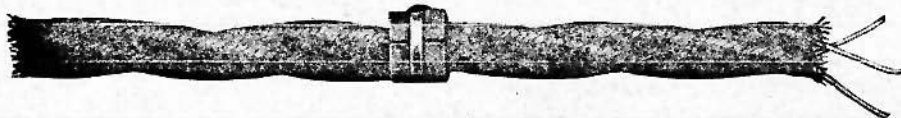
We list below the kinds and sizes of wire to use.

No. 19 Triple Conductor Dry Braid Wire



This is the standard three conductor telephone wire having a rubber insulation and outside braided cover, and is used in residences, offices, and in dry places in general.

Triple Conductor Weatherproof Wire



No. 18 triple conductor weatherproof wire.—We recommend this wire for all mills and factories even when atmospheric conditions are good, and specify its use in any case where dampness exists, as in cellars or where steam or chemical fumes escape.

No. 16 triple conductor weatherproof wire.—We specify this wire for out-of-door work, between buildings, etc., where exposed to the elements; and in many cases for long runs indoors.

No. 14 triple conductor weatherproof wire.—We specify this wire for long runs out-of-doors, as on account of its greater tensile strength, it will stand up longer under severe weather conditions.

Twin Conductor Wire



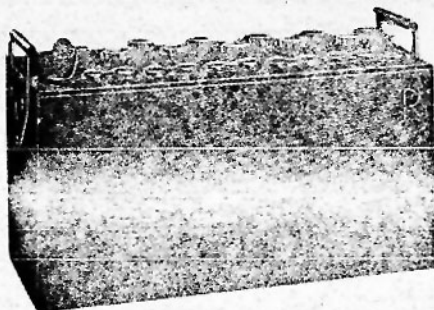
No. 16 twin wire, weatherproof covering.—We recommend this wire for all ordinary general call circuits.

No. 14 twin wire, weatherproof covering.—We recommend this wire for long out-of-door runs for the general call, or where a circuit is heavily loaded with bells, horns, etc.

Before ordering any wire, however, verify your selection of sizes by reference to tables in our printed specifications.

STORAGE BATTERIES

Two Sizes—50 and 100 Ampere Hour Capacities



Automobile rubber jar type (as shown) or sealed glass jar

Electric current for the operation of the Select-O-Phone system is supplied by a 12 or 13 cell, 24 or 26 volt storage battery. We supply two types, the rubber jar type, similar to an automobile battery, 12 cells, 24 volts, or the sealed glass jar type, 13 cells, 26 volts. Size glass jar cells: height 15 in., width 5 in., depth 8½ in. Where space permits, we recommend the 13 cell, 26 volt, sealed glass jar type.

For systems up to 36 lines, and a medium general call system, we recommend the 50 ampere hour size. For larger systems, the 100 ampere hour battery. We supply full instructions relating to the installation and maintenance of batteries.

BATTERY CHARGING PLANTS

To maintain a proper supply of current in the storage battery a charging means must be provided for utilizing your available current supply, usually from a lighting or power circuit, and converting it to direct current, if alternating, of the proper charging voltage.

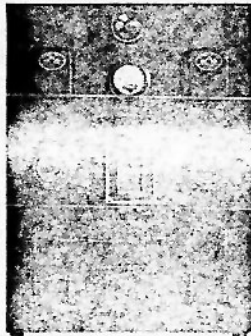
In selecting a charging plant, first ascertain the characteristics of your lighting or power circuit, and by consulting the table below you can determine which of the charging plants listed on the following pages can be used with your particular current, and your selection thereby simplified.

Current Available for Charging	Use Power Plants
110 volts D. C.	M-1, M-2, D-2
220 to 250 volts D. C.	M-1, M-2
110 volts A. C. 60 cycles	M-1, M-2, T-1 or T-2.
220 to 250 volts A. C. 60 cycles	M-1, M-2, T-1-T or T-2-T.

If your voltage or cycle is not listed above, consult us before making your selection.

Each individual charging plant as listed on the following pages is complete, and embraces all the apparatus necessary to charge the storage battery from the current supply available.

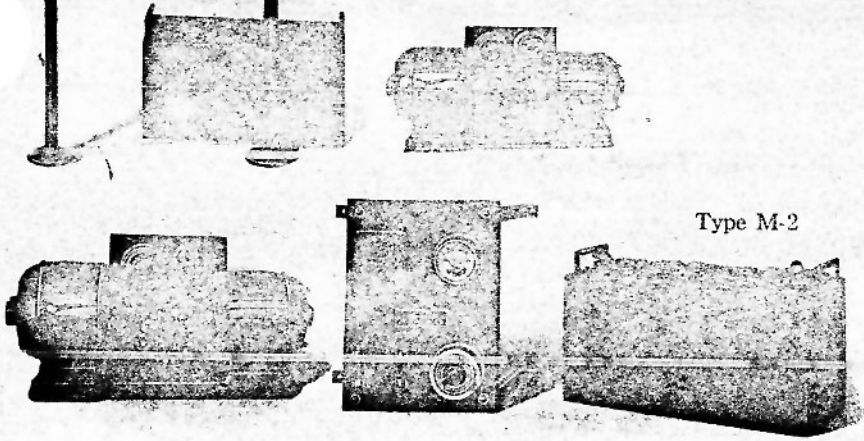
POWER PLANTS



Type M-1



Type D-2



Type M-2

POWER PLANTS

Type M-1 (Automatic) For D. C. or A. C., any voltage or cycle

This is our universal automatic charging plant, designed to automatically maintain a proper charge in the storage battery and operates from any available source of current, usually from a power or lighting circuit. Its operation is controlled by the battery voltage. It starts automatically when the battery voltage drops, the charging switches automatically operate and the battery continues to charge until the voltage is raised sufficiently, when the charging is automatically stopped.

An auxiliary manual charging switch is provided for use in emergencies, or to give the battery an overcharge.

- The outfit consists of—
1. One M-1 automatic charging board.
 2. One motor generator, 175 watt output.
 3. One storage battery.

IMPORTANT: In ordering the M-1 charging plant, it is absolutely necessary that you specify—1st, the current you propose to operate from (A. C. or D. C.) and the voltage; 2nd, if A. C., the cycle; 3rd, whether a 50 or 100 ampere hour battery, sealed glass jar or rubber jar type.

Type M-2 (Manual) For D. C. or A. C., any voltage or cycle

This is a manually operated motor generator charging plant, designed to operate from any available source of current, usually from a power or electric lighting circuit. To some employee is assigned the duty of turning a switch periodically from two or three times a week to once every two or three weeks, depending upon the amount of use the system gets. The battery voltmeter tells when a charge is necessary.

The outfit consists of—

1. One M-2 charging panel.
2. One motor generator, 175 watt output.
3. One storage battery.

IMPORTANT: In ordering the M-2 charging plant, it is absolutely necessary that you specify—1st, the current you propose to operate from (A. C. or D. C.) and voltage; 2nd, if A. C., the cycle; 3rd, whether a 50 or 100 ampere hour battery, sealed glass jar or rubber jar type.

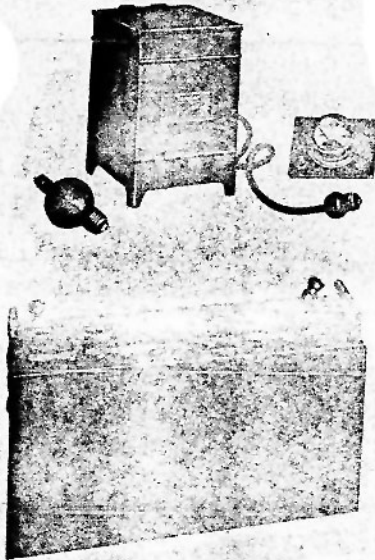
Type D-2 (Manual) For 110 volts D. C. only

This is a manually operated charging plant, designed to utilize the current from a 110 volt D. C. lighting or power circuit, and charge through resistance units. It is designed for two charging rates—a low rate for general use, and a high rate for periodic "flood" charging. The battery charging must be done when system is not in use as the battery is disconnected from the system when on charge. The D-2 power plant cannot be used on an A. C. circuit.

The outfit consists of—

1. One D-2 charging board.
2. One storage battery (specify 50 or 100 ampere hour capacity, sealed glass jar or rubber jar type).

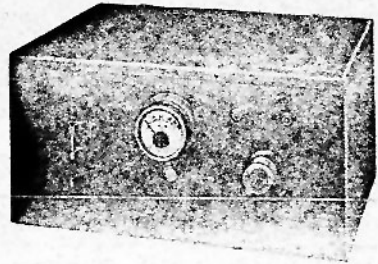
POWER PLANTS



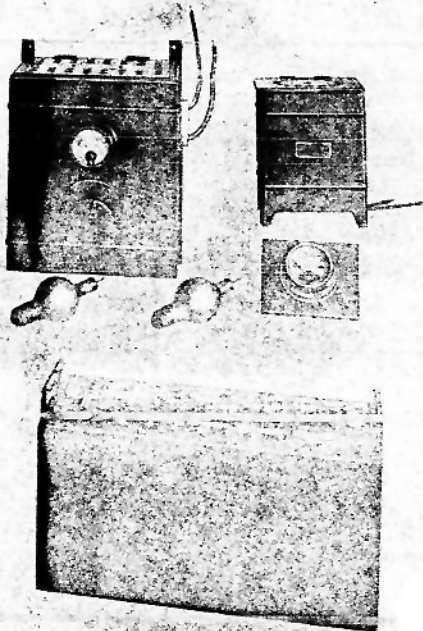
Type T-1
With rubber jar type battery



Transformer



Type X Dry Battery Box



Type T-2
With rubber jar type battery

POWER PLANTS

Type T-1 (Manual) For 110 volt, 60 cycle A. C. only

This is a manually operated plant, employing a single wave Tungar Rectifier of portable type, with cord and plug for screwing into a lamp socket. Used with small systems (5 to 20 stations) and delivers $1\frac{1}{4}$ amperes at 30 volts D. C. While charging, a slight hum can be heard in the telephone, which, if objectionable, can be avoided by charging at night or out of hours. The T-1 outfit cannot be used on a D. C. circuit.

This outfit consists of—

1. One T-1 single wave tungar rectifier.
2. One storage battery, 50 ampere hour capacity.
3. One voltmeter, mounted on slate.
4. One extra tungar bulb.

NOTE: May be specially wound for other than 60 cycles.

Type T-1-T (Manual) For 220-250 volt, 60 cycle A. C.

This plant is identical with T-1 above, except that a transformer is included for reducing the voltage to 110 volts. In ordering this plant, voltage must be specified. The T-1-T outfit cannot be used on a D. C. circuit.

NOTE: May be specially wound for different voltages and cycles.

Type T-2 (Manual) For 110 volt, 60 cycle A. C. only

This is a manually operated plant employing a double wave tungar rectifier, the output being $3\frac{1}{2}$ amperes at 30 volts D. C. This outfit will supply ample charging current for the largest Select-O-Phone system. The charging rate can be varied from a low rate for "floating" to a high rate for periodic "flood" charging. The T-2 outfit cannot be used on a D. C. circuit.

This outfit consists of—

1. One T-2 double wave tungar rectifier, to mount on wall.
2. One external reactance for use with above, to mount on wall.
3. One storage battery, 50 or 100 ampere hour capacity.
4. One voltmeter, mounted on slate.
5. Two extra tungar bulbs.

IMPORTANT: In ordering this plant, specify voltage and 50 or 100 ampere hour battery.

NOTE: May be specially wound for other than 60 cycles.

Type T-2-T (Manual) For 220-250 volt, 60 cycle A. C.

This plant is identical with T-2 above, except that a transformer is included to reduce the voltage to 110 volts. It cannot be used on a D. C. circuit.

IMPORTANT: In ordering this plant, specify voltage and 50 or 100 ampere hour battery.

NOTE: May be specially wound for different voltages and cycles.

Type X

Dry cells may be used to operate small Select-O-Phone systems, their economy depending entirely upon the amount the system is used. We supply a Type X battery box to hold 24 cells; 20 cells for normal operation and 4 cells for reinforcement as the battery grows weaker. On the face of the box is mounted a voltmeter, switch and fuse. Instructions are supplied. Dry cells to be supplied by customer.

GENERAL CALL SYSTEM

The General Call

This service is auxiliary to the Select-O-Phone service, and is used to quickly locate persons whose duties take them to all parts of the premises and to establish a talking connection with them. Also for fire alarm or other general signalling purposes (see pages 3 and 4).

The elements of the General Call are as follows:

1. The General Call Relay in the switchboard.
2. The General Call circuit from the switchboard to the various signals.
3. The signalling devices, horns, bells, etc., connected to the circuit.

The Signal Circuit

A pair of wires, usually No. 16 twisted pair weatherproof (see page 16), is run from marked terminals in the switchboard to various parts of the premises, and signalling devices connected in multiple to the circuit, the devices all sounding a signal in unison. The circuit may be branched to various locations, or separate circuits from several directions brought back to a common connecting point.

Selection and Location of Signals

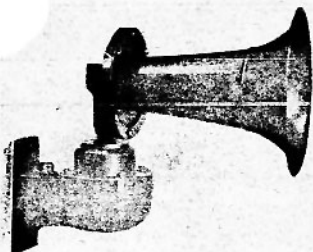
Care should be exercised in the proper selection and location of the signals, the object being to distribute the various horns, bells, etc., so that a signal on the call system may be heard in all parts of the premises. It is obvious that in locations where the signals have to compete with considerable noise, a louder sounding signal must be employed. For weave rooms of mills, and other excessively noisy places, the motor driven horn is most suitable. In less noisy locations the vibrating horn or large bells may be used. In offices or reasonably quiet places, small bells or buzzers. In hospitals it is usual to employ lights that flash the signals.

Sources of Operating Current Small call systems, of not more than eight vibrating horns, or twenty small bells, or their equivalent, may be operated directly from the General Call Relay in the switchboard, using current from the Select-O-Phone storage battery (specify 24 volt horns or bells).

Where motor driven horns, or a large call system requiring considerable current to operate is installed, a separate source of operating current must be used, preferably a 110 volt lighting circuit, in which case 110 volt A. C. or D. C. horns must be specified. Where a 110 volt supply is not available, the call system may be operated from a separate storage battery, which must either have a separate charging plant or a charging board to alternately charge the call system battery and the Select-O-Phone battery. In this case specify 24 volt horns or bells.

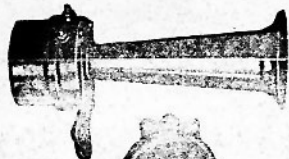
In either case, the signals are operated by one or more auxiliary relays which are controlled by the General Call relay. The number of auxiliary relays required depends upon the size of the call system (refer to instructions).

GENERAL CALL SIGNAL APPARATUS



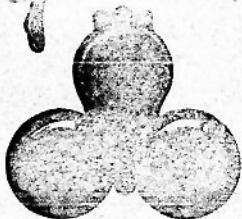
Motor Driven Horn

For 110 volt D. C. or 110 volt 60 cycle A. C. Recommended for use in boiler shops, weave rooms, drop forge plants, in lumber yards and out of doors in general, where a loud and penetrating signal is required.

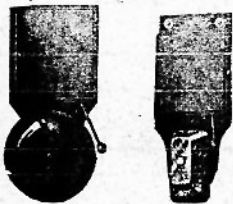


Vibrating Horn

Specify for 24, 110 volt D. C., or 110 A. C. Recommended for general use in industrial plants where noise is not excessive. It gives a clear, distinct signal of moderate intensity, which separates itself well from mechanical noise.



With 6" or 4" gongs, for 24 volt D. C. only. Gives a loud, clear tone of about the same intensity as the vibrating horn, and used under same conditions. Has more pleasing tone, but is not as easily distinguished from mechanical noise.

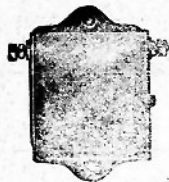


With 4" or 2" gongs for 24 volt D. C. only. Made with round or cow bell gongs. The cow bell is the more penetrating and can be heard above the hum of machinery better than the round gong.

Single Gong Bell

Buzzers

For 24 volt D. C. only. The buzzer is suitable for general offices, salesrooms or private offices where louder signals are objectionable. The Nutmeg, or round buzzer (not shown), gives a softer tone than the buzzer illustrated.



Combination Call System

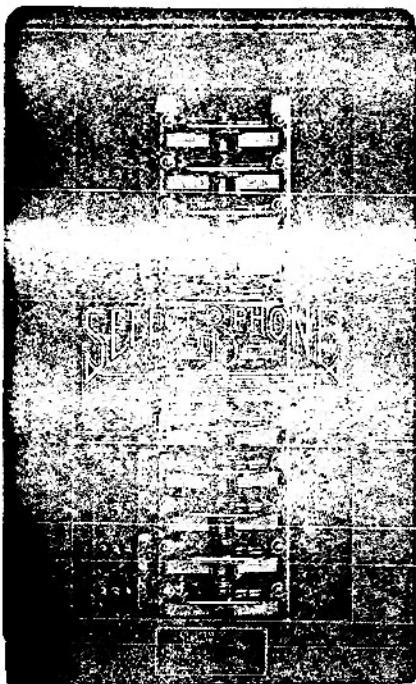
In many cases it is economical to operate the larger signals, as motor driven horns, etc., from the lighting circuit, and the smaller signals from the Select-O-Phone storage battery. The current from which the various signals are to operate must be specified.

Extension Signals

Any of the signalling devices described above can be used as extension or auxiliary signals for individual telephone stations, where the regular telephone bell cannot be heard, but must in every case be specified "for extension use" as the windings differ from the standard call signals, and the larger signals require a relay for their operation. They can be operated from the lighting circuit or in isolated places from dry cells. The smaller sizes operate as an extension and together with the regular bell. The larger sizes require to be operated from a relay cutting out the standard telephone ringer.

THE JUNIOR SELECT-O-PHONE

Made in 12- or 36-station ultimate capacity



12-Station Junior Type Switchboard

Dimensions:

Width 14 $\frac{1}{4}$ "--Height 23 $\frac{1}{4}$ "--Depth 10"

Dimensions between mounting holes: Width 10 $\frac{1}{2}$ "--Height 19 $\frac{1}{4}$ "

Dimensions of 36-station Junior switchboard same as Standard Switchboard shown on page 10

Service

The Junior Select-O-Phone furnishes automatic telephone service between any number of instruments simultaneously up to its 12- or 36-line capacity. It does not provide secret conversations or general call service, advantages which are found in our standard system only, together with an ultimate capacity up to 55 lines.

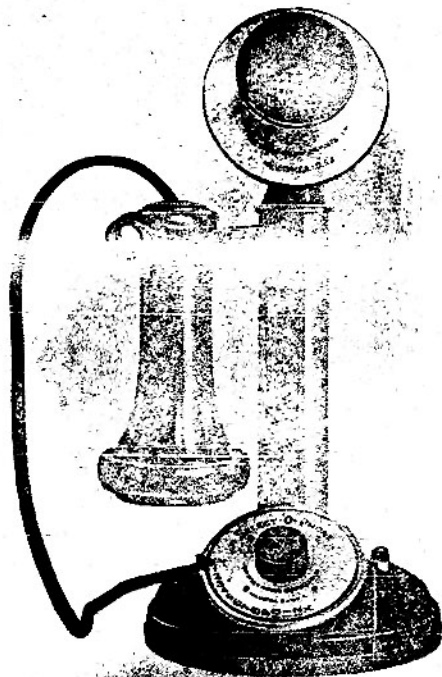
Party Lines

The actual telephone capacity of the Junior system may be increased by the use of party lines. Two or even three Select-O-Phones may be connected to any one or all lines. Customers are privileged to order from three stations upward.

Instruments

Junior type instruments are made in four styles, the desk type illustrated above, the wall type, the desk hand microphone, and the wall hand microphone.

Prices on Junior equipment are less than those for standard equipment.



Junior Type Desk Set

