

# The Magic Crystal

ALVA F. ALLEN Manufacturer and Distributor

DEVOTED TO CREATING INTEREST IN TUDELESS, BATTERYLESS, CRYSTAL RADIOS

CLINTON, MISSOURI

## Crystal Radios Require No Tubes or Batteries

No Static or Distortion is Reported in Reception Over Hundreds of Miles; No Expense to Operate

Crystal Radio Sets use no batteries or tubes yet able to receive programs, in many cases over dreds of miles. The sets are simple, practical nundreds of miles. The sets are simple, practical and efficient. There is no expense to operate a Crystal Radio Set.

While the ordinary range is up to fifty miles, distance reception is not at all unusual. Many reports have been received telling of clear reception over hundreds of miles. Even with the most simple Crystal Radio Set long distance reception can be expected and obtained in practically any part of the country, under favorable conditions.

Natural Ores Provide

The Most Efficient hundreds of miles.

Extreme simplicity and ease of construction are responsible for the tremendous interest shown in the tremendous interest shown in crystal radios. In order to gain a fundamental knowledge of radio every boy should make and enjoy a radio set. In this day of super-powered broadcasting stations the world's best talent is available to the crystal user. Since no tubes or batteries are used, Crystal Radios have always been noted for their pure, undistorted tone qualities.

Radios have always been noted for their pure, undistorted tone qualities.

It should be remembered that the operating efficiency of crystal radios depends greatly upon the correct installation. The only current used by the set is the very small amount picked up by the aerial and a good aerial and ground is of utmost importance, especially where distance reception is desired.

"DISTITE"

#### Midget Semi-Fixed Crystal Detector



No. D-125 50c

Ideal for Smallest Pocket Type Sets; Semi-Fixed Converted In-to Permanent Detector.

Midget Semi-Fixed Crystal Detector, No. D-125, is a super compact Crystal Detector especially designed for use with small size crystal sets. The midget size makes it easy to enclose inside the case of the smallest pocket type sets.

"Semi-Fixed" means that the "Semi-Fixed" means that the catwhisker wire of this Crystal Detector, is of such a size and shape as to remain securely in place when adjusted, yet allowing it to be easily moved to readjust when necessary.

If a permanent type detector is desired it may be done by simply adjusting the catwhisker contact to place where signals are loudest and then apply a drop of collodian

to place where signals are loudest and then apply a drop of collodian cement, Du Pont Duco household cement or similar preparation, to the point of contact.

When this cement dries, the detector will stand considerable vibration without getting out of adjustment. This is recommended

adjustment. This is recommended for pocket type sets.

#### Genuine "Melomite" Radio Crystals



5 for \$1.00 POSTPAID

#### **Melomite Crystals Famous for** Tone and Distance Reception

Nationally Known for Distance and Tone, Melomite "Supersensitive" Crystals Give New Life to Old Radio Sets.

Melomite Crystals are nationally known for clearness of reception, tone, sensitiveness and long distance records. These crystals are made of care-

fully selected mineral.

There is no hunting for "hot" spots when the Melomite Crystal is used. Once the contact is made the granulated surface of this crystal eliminates all chance of contact disturbance.

Melomite Crystals will give your old crystal set new life. This crystal, packed in glassine en-velope or attractive individual display card, assures the user of the best possible results at all

times.

Radio experts readily admit that programs received on crystal sets are more lifelike, natural and clearcut than those reproduced by the most expensive electric receivers. Despite the rapid development of the vacium tube in recent years, the Crystal Radio has held its own and the demand for this type set has not fallen off to any appreciable extent.

All experimenters remember the almost perfect quality of speech and music obtained from a crystal set. This same fine quality of tone has not changed a bit; it is the same with even the most simple crystal hookup.

These Crystal Radio Sets may

These Crystal Radio Sets may be made or purchased today. The cost in either case is so small the money will never be missed by the purchaser. Users of these sets say "The enjoyment that a Crystal Set will give will amply repay you for your efforts. It is a marvelous little radio!"

# Radio Detection

Natural ores possess a rectifying quality which permits the passage of radio frequency currents in one direction only. Only superior quality natural ores are used in making Melomite Radio Crystals.

This ore must hass yeary rigid

Radio Crystals,
This ore must pass very rigid
tests both before and after
mounting in the soft metal
holder. These Radio Crystals are
given an actual reception test
and must be able to bring in
clear and distinct reception
from breadcasting station locatclear and distinct reception from broadcasting station locat-ed about seventy-five miles

distant.

Lead galena, used in Melomite Radio Crystals, is smooth on fracture and has a tendency to break in cubes. Silver galena to break in cubes. Silver galetia has a brilliant sparkling surface and will maintain a sensitive surface for a considerable length of time. Both lead and silver steel galena require a very sensitive contact for best

The function of a Crystal De-tector as used in a Crystal Radio is to serve as a valve or recti-fier allowing only a certain part of the current received from the

fier allowing only a certain part of the current received from the transmitting station to pass into the ear phones, changing this current from an alternating to a pulsating direct current so that the headphones will respond to the varying intensity of the received signal.

Among these natural ores which possess this quality are lead galena, iron pyrites, silver steel galena and silicon. There are other minerals which must be used in combination to obtain this rectifying quantity; among these are zincite used with bornite or rock crystal. Carborundum and meledenum have also been used but they are used in combination with a battery and potentiometer to vary the current. They are stable in operation but not as exercitive as the minerals re-

vary the current. They are stable in operation but not as sensitive as the minerals re-quiring a sensitive catwhisker contact.

Many attempts to produce a sensitive synthetic mineral have been made, however none have proven as successful as the natural mineral. The natural natural mineral. The natural ores vary considerably in radio-sensitive qualities and in many cases ore of identical physical characteristics vary greatly in rectifying qualities.

For this reason only the best, most efficient, natural ores are used in making the Melomite Padio Crustals.

Radio Crystals.

# "Crystal Detector Superior"

Opinions Obtained from Leading Magazines Prove Practicability of Crystal Radios.

'As every radio man knows, "As every radio man knows,"
Radio-Craft magazine said, "there
is nothing superior to the crystal
detector when it comes to
quality." This statement alone
will eliminate any doubt as to
the fact that a radio which uses
no tubes or batteries is able to
receive programs from broadcasting stations located miles

Presented herein are the opin-Presented herein are the opinions of leading magazines as shown by items which have ap-peared in their columns, in order to prove the practicability of Crystal Radios.

The editorial, by Hugo Gernsback, appearing in Radio-Craft said in part:

"Take for instance our present-day detector tube. It is woefully inadequate (with regard to quality) and compared to the crystal detector, it is exceedingly poor. This has led a Western experimenter to substitute a crystal for a detector tube in his television set, with astonishingly better results in the quality of the received in grape. The crystal detector is full of mysteries as yet unsolved by radio engineers. As every radio man knows, there is nothing superior to the crystal detector when it comes to quality. What all of them do not know, however, is that the crystal has frequently been an excellent distance getter, in the case of a vacuum tube set equalled that obtainable from the simplest crystal hook-up.

"In these days of elaborate multitude radio receivers—it is well to remember that far simple requirements of a certain class radio listeners. If, for example, you live within a mile or so of a broadcasting station and use head-phones, is that the crystal has frequently been an excellent distance getter, including the rectify the radio signals. Remember it was years before the tone quality obtainable from the tone quality obtainable from the simplest crystal look-up.

"In these days of elaborate multitude radio receivers—it is well to remember that far simple requirements of a certain class radio listeners. If, for example, you live within a mile or so of a broadcasting station and use head-phones, is that the crystal has frequently been an excellent distance getter, in the complex of a vacuum tube set equalled that obtainable from the tone quality obtainable from the simplest crystal leads to a crystal Set will give will amply repay you for your efforts. It is a marvelous little radio!"

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and there have been many cerifi-cations of this. For no known reason at all, the crystal, whose limit is usually 15 to 25 miles, has been able to bring in signals from distances up to 300 miles. Of course, the 'wise' radio man will point out that this must be a 'freak' reception, and let it go at that, but when the same freak re-ception is duplicated hundreds of times they are no longer 'freaks' times they are no longer 'fr but become pretty normal.

"Believe it or not, but we have received more inquiries from be-ginners for crystal receivers than for any other type of set."

Popular Science Monthly, one of the most outstanding science magazines in the country says:

magazines in the country says:

"Almost the first practical radio receivers, long before the days of modern vacuum tubes, used a sensitive crystal to detect and rectify the radio signals. Remember it was years before the tone quality obtainable from the loud speaker of a vacuum tube set equalled that obtainable from the simplest crystal hook-up.

"In these days of clobarate."

#### Question and Answer Department

Below I am listing some of the common questions which crystal fans have asked. These have been answered to the best of my ability. If you have a question regarding crystal sets which you would like answered please write me, enclosing stamped addressed envelope for reply. If you have any answers to Crystal Set problems which you think would be of interest to others, especially beginners, please send them in and will try to print them in next issue.

Q. What is there to wear out on A. The crystal is the only part which wears out and they will last from six months to several years.

from six months to several years.
Q. Do I have to be an expert to
build or install a crystal radio?
A. No. Simply follow the direction sheet supplied with our products and you should have no
trouble at all. Remember that
since no batteries or tubes are
required you do not have any
complicated connections to bother
with.
Q. Do hig super-power tears

Q. Do big super-power trans-mitting stations hurt a crystal

Q. Can I use more than one pair of phones with a crystal set?
A. Yes. As many as five pair of good phones will give good results. Connect the phones in series. That is, hook one terminal of phone to set, connect other terminal to terminal of other phone, and other phone tip to set. This increases resistance of phones while connecting in parallel cuts down the resistance and

allel cuts down the resistance and lowers efficiency of phones.
Q. Is anything to be gained by two or three crystals in series or in parallel?
A. No. Crystals have no amplifying notes.

ith.
Q. Do big super-power transititing stations hurt a crystal
et?
A. No. Crystals nave no amprifying property. They merely detect or rectify the incoming signals. A vacuum tube amplify the
outmay be used to amplify the
outtube to the contraction of the contraction

Q. Can I use phones of different resistance together?
A. Yes. They will give good results. Connect phones in series.

crystal or earphones?

A. There is no wear on the phones and hardly any on the crystal. Crystals are in most cases worn out by scraping the catwhisker wire over their surface. We advise lifting the catwhisker wire down will find that crystals will last much longer.

Q. How can I clean the surface of a crystal?

A. Use a soft cloth moistened with water or alcohol. Do not scrape the surface with a knife as this will render the crystal use-less.

Q. What is the function of a crystal?

A. The radio crystal serves as

(Continued on page 3)

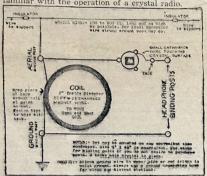
## LONG DISTANCE CRYSTAL RADIO SET IS EASY TO M. WHEN YOU FOLLOW THESE FEW SIMPLE INSTRUCTIONS

"Distite" Crystal Radio Set No. 1 Is Recommended for Beginners Before Building More Elaborate Set.

The simple crystal set described below is very efficient and under favorable conditions is capable of receiving stations located many miles away. ordinary range of 10 to 50 miles is greatly extended ordinary range of 10 to 50 miles is greatly extended providing the broadcasting station is powerful and local conditions are favorable. Reception at night is always better than during the day. Greater distances can be covered in winter than in summer.

"DISTITE" CRYSTAL RADIO No. 1

The "Distite" Crystal Radio set has been made by thousands of persons and will give fine results. We recommend that you make this set before building a more elaborate set, as you will thereby become familiar with the operation of a crystal radio.



You should have no trouble con-

structing this set as full instruc-

tions are printed in above draw-

inches in diameter, slip wire from

tape around edge of coil and tack

tape to base. Leave wire ends

about 3 inches long to fasten to

Binding Posts. You can tune this set by opening and closing the

coils of wire as you would a book, separating the various turns of wire. This varies the capacity (or

wave length) to a surprising ex-

tent and allows separation of sta-

tions.

DETECTOR—Fasten crystal to base with 3 tacks or small nails or use crystal cup. Cut 1½ inch length of fine wire for catwhisker. Fasten one end of wire to base with tack spaced about ¾ inch from crystal, bend wire so that point gently touches surface crystal

PARTS LIST

PARTS LIST

Coil—25 feet No. 24 enameled wire wound on form 2 inches in diameter.

Binding Posts, —4 Spring type or any convenient type may be used. Tacks or small nails may be used or wire ends connected directly to lead in from aerial, ground and to the phone tips.

Crystal Holder—Use our spring clip type No. CC-1 or fasten to base with small tacks or nails.

Catwhisker Wire—Short length small size brass wire or order our CW-1 which is a length of specially selected wire for this purpose.

Aerial and Ground—See de

specially selected wire for this purpose.

Aerial and Ground — See detailed illustrations elsewhere in this circular.

Headphones—Any type phone may be used. If you do not have phones you may be able to obtain a set from some person in your neighborhood.

See price list for prices and description of all available parts.

crystal.

#### DISTITE CRYSTAL RADIO PROVES EFFICIENT

Pictured above is a Distite Crystal Radio Set using above circuit which proves very efficient. The size of the base is only 3 inches by 4 inches. This can be mounted on a wood base to make a very attractive set.

It is very easy to make a Crystal Radio Set to resemble this professional looking one. The printed front can be glued to a wood base with very little effort.

For this set a Panel No. FP-1 can be ordered. The price is only 10 cents each, or three for 25 cents.

Midget Crystal No. 985

Available in Choice of Three Selected Natural Ores; Size Does Not Affect Quality.

Midget Crystal No. 985, ideally

Midget Crystal No. 985, ideally suited for making detectors for small size sets and headphone contained crystal sets, comes in a choice of three selected natural ores. The small size of this Crystal does not detract from its efficiency in the least since a small piece of mineral is just as sensitive as a large Crystal.

The sensitive qualities of a Crystal depend entirely upon the chemical formation of the ore and not on the size. This Crystal is made of the best ore. It can be obtained of silver steel galena, iron pyrites or 1 e ad galena, depending upon the user's preference.

Each Midget Crystal No. 985, the same as all other Crystals ob-tained from Alva F. Allen is of the highest quality and is given complete testing before shipping.

Even though the Midget Crystal is small it may be easily held in place with a small wood or machine screw. The catwhisker contact wire should be fastened in place and bent so as to gently touch the surface of the mineral.

A small piece of suitable cat-whisker wire is included free with each No. 985 Crystal. When ordering ask for one of

MIDGET CRYSTAL No. 985S

MIDGET CRYSTAL No. 985L Selected Iron Pyrites.....Price 35c MIDGET CRYSTAL No. 985P Selected Lead Galena... Price 35c

Price 35c

the following:

Selected Silver Steel Galena '

Ideal for Small Sets

#### INSTRUCTION SHEET

ing. The Coil is made of 25 ft. of No. 24 enameled magnet wire (other size wire may be used). Instructions for making one of these Distite Crys Wind wire around form about 2 tal Sets are very simple. The directions, along with diagrams, are printed on heavy paper so that it can form and wrap a small piece of be fastened to the bottom of the set.

A picture of this instruction sheet is shown bewill be to follow the construction details.

# INSTRUCTIONS

#### To Crystal Set Fans

I have been making radio crystals since 1920. The simple Crystal Radio Set has been the Crystal Radio Set has been the first set made by many present day radio experts. I will certainly welcome any suggestions which will improve "The Magic Crystal" and make it more interesting and instructions.

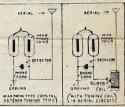
ive.
In the next issue of "The Magic Crystal" I would like to publish more names and addresses of crystal fans who addresses of crystal rans who wish to exchange ideas with others. If you would like your name and address to appear, send me a letter with your name and address written plainly with request that it piann, appear. Sincerely yours, Alva F. Allen.

#### Pocket Type Radio In Headphone Case

Pocket type radio sets have been very popular and thousands of these sets were sold at prices ranging from \$3.95 up. This is the most simple type crystal set possible to make, as no tuning arrangement is used.

For this reason this type set is suitable for reception from closely stations and will rarely work for distances over five miles.

Figure P-4 shows the circuit used for this pocket type set. The detector used can be mounted either inside or outside the case



or can be connected across the cord terminals at the end of the cord. The easiest method is to use phones with outside terminals and simply connect a small size detecto across these.

Midget Semi-Fixed Detector No. D-125 (shown on page 1, column 1) is very well adapted for this purpose and it is a simple matter to make the set with it.

If it is desired to mount the detector inside the case, No. 985 Midget Crystal (column 2 of this page) can be readily adapted for this use, using a brass wire for contact. This wire is furnished with the crystal.

To use the pocket type radio merely connect one phone cord to aerial and the other cord to the ground. Then adjust cat-whisker contact until signals are loudest. If the user is very close to a broadcasting station it is sometimes possible to receive programs using either the ground



or aerial connection alone.

Results with this type set can be considerably improved by connecting a tuning coil in the aerial circuit. The coil shown in Figure MK-1 can be used for this purpose and will make possible a certain amount of tuning.

This instruction sheet can be obtained by placing an order for "Instruction Sheet No. IS-1."

low to enable the reader to see just how simple it



#### "MELODY KING" CRYSTAL SET No. 2

COILS—The No. C-1 Coil is that of the flat type and is single layer, wound with No. 30 enameled copper magnet wire on heavy fibre board form. Coil is ¼ inch thick by 3 inches floor heavy side. The wire is wound within ¼ inch of each end, leaving wire space 2½ inches. Two small holes are punched in end for mounting. Due to the small size of this coil, it can be used in making many different style sets.

No. C-2 Coil is of slightly heavier construction, being ¾ inch thick by 3 inches long and 1½ inches wide. This coil is single layer wound, holes are drilled in the ends. Due to the larger size of this coil, you will find it a very reactical size for all small sets.

The size of coil can be changed to suit your purpose and different size wire can be used if desired. However, we do not recomment size wire smaller than No. 30 or larger than No. 26 for pocket sets. If you desire to make large size sets, No. 24 or No. 22 wire will be satisfactory. Enameled copper magnet wire should always be used for coils due to the ease of handling. Wire should always be wound carefully so that the turns will be vight and close to each other, so the slider arm will move smoothly over the surface. After the set is assembled and slider arm is in place, move slider back and forth, holding the contact endightly against wire until the enamel insulation is cut through and bright copper shows. This allows slider to make contact with the various turns so that more or less turns of wire are in the circuit. This varies the capacity of the coil and tunes the set to the various wave lengths necessary.

For connecting the various parts of your set together, use small size copper wire. The same including posts for the connection between sold as "pocket radios," these sets urns of wire are in the circuit. This varies the capacity of the coil and tunes the set to the various wave lengths necessary.

For connecting the various parts of your set together, use small size copper wire. The same

the coil and times the set to the various wave lengths necessary.

For connecting the various parts of your set together, use small size copper wire. The same size as used in your coil will be attisfactory. Small wire is just as efficient as large wire for this purpose and is a lot easier to handle. The insulation should be removed completely at points where connections are to be made. Sandpaper or a knife may be used. Lots of beginners forget to remove insulation at connections and consequently their sets refuse to work. If connections are not carefully made your set will not work. It is always best to solder wires together. However, if tightly twisted they should give no trouble.

Pocket Radios are connected to the Aerial and Ground in exactly the same manner as larger crystal radios. Complete detailed instructure.

the same manner as larger crystal radios. Complete detailed instructions are given elsewhere in this catalog.



Melody King.

This shows a very successful little set which uses the circuit shown in Figure MK-1. You can easily make your set to resemble this in appearance. This set is only 3 inches square by 1 inch.



Cutaway view of "Melody King" Crystal Set showing sim-plicity of construction. This set uses the circuit shown in MK-1.

All pocket radios which do not require tubes or batteries are dependent upon the crystal detector for their operation and are crystal radios in every respect. They use a standard crystal set circuit with coil, detector and binding posts for the connection to aerial, ground and phones. The simplicity of design and construcsimplicity of design and construc tion of the crystal radio makes it an easy matter to make the parts of a suitable size as to be easily enclosed in a small case.

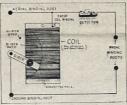


Figure MK-1.

Single slide tuning coil circuit Especially recommended for small pocket sets.

Figure MK-1 shows a very efficient little set and the circuit used can be employed with any size coil or detector desired. This circuit is the standard single slide tuning coil circuit used by practically all makers of commercial crystal sets. It has proven yery crystal sets. It has proven very practical and efficient and is con-sidered best for small crystal sets.

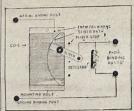


Figure MK-2.

Optional method of wiring single slide tuning coil circuit. Same parts as used in Figure MK-1.

Figure MK-2 shows a different method of wiring, using the same parts. This arrangement also gives good results and in some localities may be more selective than the first mentioned circuit.

Both these drawings show Midget Semi-Fixed Detector No. D-125.

#### INSTRUCTION SHEET NO. IS-2



This very complete instruction sheet covering installation of Crystal Sets available printed on heavy paper, size 3 by 3 inches.

#### Installation Suggestions for Simple Crystal Radio Sets

Since a Crystal Radio uses no tubes or batteries and is dependent for its operation upon the signal transmitted by the Broadcasting Station, it is necessary that care be exercised in installing so as to take full advantage of the received signal.

#### AERIAL

For best results and especially when distant reception is For best results and especially when distant reception is desired, the aerial should be as high as possible (40 feet or more) and from 100 to 200 feet long. Before proceeding with the erection of aerial, study the various locations available. If possible run your aerial in the direction of station you are most anxious to receive. Keep in mind the location of set in the house so that lead-in wire can be easily run to a window near the set. Be sure to do the work in a workmanlike manner and remember that the aerial wire is sometimes subjected to severe strains.

aerial wire is sometimes subjected to severe strains.

After selecting the location cut the aerial wire to a length equal to the straightaway length desired. Fasten the insulators to each end. To the other end of insulators fasten lengths of wire necessary to fasten the anchorages. Before hoisting the wire in place, strip six inches of insulation from lead-in wire and securely twist around aerial wire. Best connection is made by soldering. If a tree is used at either end of aerial for support the insulator should be placed beyond branches and it's well to insert a spring between insulator and tree to accommodate for sway of tree.

Bring the insulated lead-in wire down to the window, fastening to the house at intervals by means of nail-it knobs. Place a window lead-in strip under the sash, strip the insulation from end of lead-in wire and fasten it to outside end of strip. The unused portion of lead-in wire can be used to connect the inside terminal of strip to set.

#### GROUND

As a good ground connection is very important, too much care cannot be taken to assure this being satisfactory. Attach wire by means of clamp to water pipe or rod driven several feet in moist earth. Best ground is made by soldering wire to old copper boiler or auto radiator and burying this in several feet of moist soil. Sometimes several rods spaced several feet apart and connected together will improve reception. Use insulated copper wire (stranded preferred) and run as direct to set as

#### Questions and Answers For Crystal Users

(Continued from page 1)

a valve and allows to pass into the head phones only a certain part of the radio wave, changing its char-acter from an alternating current so that the headphone will re-

Q. Can I use a fire escape as a ground for my crystal set?

A. In many cases fire escapes are not grounded and for this reason would be worthless as a ground. However, on very close stations it might be used as an aerial.

Q. I have made my crystal set and all I can get is a humming sound. What is the cause of this?

A. This sometimes denotes a poor connection. Be sure to check your set completely, be sure that connections are perfectly made. If enamel wire is used remove the insulation with sand paper or by scraping with a knife. Also a humming sound may be caused by your aerial running parallel to a power line. In that case place your aerial at right angles to the power line.

Q. May a loud-speaker be used with a crystal set?

A. Only in very unusual cases. Sometimes when located within a few blocks of a powerful broadcasting station signals are strong enough to operate a sensitive speaker with fair volume. A regular tube type amplifier may be used by connecting the output or phone terminals to the input terminals of amplifier.

Q. Is it absolutely necessary to insulate an aerial?

A. In dry weather an uninsulated aerial may be used without much leakage. In damp weather, however, it is necessary to have the aerial insulated at all points of support. Ordinary porcelain insulators are satisfactory.

Q. Is it necessary to solder the joints in aerial?

A. It is advisable to do so, particularly if the aerial is to be more or less permanent. The corrosion of the wire at the joints will increase the resistance at those points unless the joints are soldered.

Q. Is it necessary to have the aerial far removed from metallic objects and buildings?

objects and buildings?

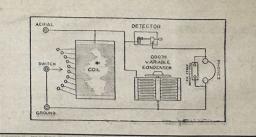
A. It is best to keep the aerial as far away from metallic structures as possible. It is not absolutely necessary to have it any great distance away, but in general, the further away the better the results.

(Continued on page 4)

#### CRYSTAL SET No. 3

For those who desire a more elaborate and efficient set we recommend the set described below. These instructions should enable you to make a very satisfactory set and one which under favorable conditions will receive programs from stations a considerable distance away.

If you will follow the hook-up carefully no difficulty should be encountered either in making or installing the set. A cigar box may be used to house the parts and if stained or painted will make a very attractive case. Best connections are made by soldering. If this is not convenient be sure to twist the wire together securely. In either case the insulation must be removed at point Sandpaper or of connection. scrape enamel until bright copper



Circuit Diagram for Set No. 3

Circuit Diagram
The COIL can be wound on any
convenient form. We recommend
using a paper tube 3 inches in
diameter by 4 or 5 inches long.
Wind with 55 turns No. 24 enamel
wire, single layer, and tap at
every fifth turn to switch points.
Length of coil wire may be varied
and spacing of taps may be
changed. You will find by experience the best combination for
stations you wish to receive. Size
of wire is not of great importance

m for Set No. 3
and if you have different size
wire on hand this may be used.
Brackets may be used to mount
the coil either in an upright or
lengthwise position. If you have
a different capacity Variable Condenser on hand it will no doubt
give good results, at least it will
pay you to give it a trial. Phone
Condenser is not absolutely necessary, but sometimes will improve
sary, but sometimes will improve sary, but sometimes will improve reception.

## Satisfied Crystal Radio Users Write From All Over United States and Canada

ARKANSAS

R. M. Cratty, Rt. 6, Box 250, LITILE

ROCK, Ark., Feb. 17, 1945—"Here are

ROMM of the stations. I have received;

KMOX.

Little of the stations. I have received;

KMOX.

Little of the stations. I have received;

KMOX.

Little of the stations. I have received;

KMOX.

Joe Williams, Rt. I. EMERSON, Ark.,

Jan. 1, 1945—"I can receive KWKH,

Jan. Williams, Rt. I. EMERSON, Ark.

Joe Williams, Rt. I. EMERSON, Ark.

Joe Williams, Rt. I. EMERSON, Ark.

Joe Williams, Rt. I. EMERSON, ARRIVAL

COLORADO

Earl Carpes, 1513. Arapshag.

COLORADO

Earl Carnes, 1513 Arapahoe, DENVER, Colo., Oct. 15, 1944—'I am very
pleased with my MELOMITE Radio
Crystal and I want another one and
some of my Inlends are wanting one
with and I get three Denver stations
very loud and with a bell-like tone."
CALIFORNIA

A. L. Murphy, TRONA, Calif. Oct.
31, 1944—'Local minerals are plential
but find more consistent and louder
results via your minerals. Hence,
CONNECTICUT

CONNECTICUT

Ross Firestone, 51 Central Ave. WATERBURY II, Conn., Feb. 13, 1945—"I built a crystal radio and got good results. It has a clearer tone than any of the radio sets I have had before."

Daniel Jensen, Jr., 1308 Noble Ave., ORLANDO, Fla., Oct. 7, 1944—"Re-ceived your crystal and was pleased with reception. I informed my friends of my success and was deluged with inquiries and orders."

inquiries and orders."

GEORGIA

David Hall, HEPHZIBAH, Ga., Oct.
3, 1944—"I ordered one of your crystals
and I think it is wonderful. I have received stations over 1,000 miles away."

Paul McNorrill, 505 E. 6th, WAYNESBORO, Ga., Feb. 19, 1945—"With my
BORO, Ga., Feb. 19, 1945—"With my
BORO, Ga., Feb. 19, 1945—"With my
BORO, Ga., Feb. 19, 1945—"With my
Indiana, 1950 miles, 1950 miles

NDLANA
Charles Adams. METAMORA, IND.
March 3, 1945.—"I received some literatime from you about two years agothat time I bought three MELOMITE
Crystals, which have proved to be wonderful. I would like to order more."
Bill Griffith, 1021. North 7th St.,
Bill Griffith, 1021. North 7th St.,
'I was pleased with reception of your
MELOMITE Crystal. One night I received WSM Nashville. I also receive
local stations." MELOMITE Crystal: Ore ceived WSM Nashville. I also received wSM Nashville. I also received local stations."

Alam Martin, 624 Walnut, FORT WAYNE, Ind., Oct. 7, 1944.—"Upon making your best set, I got such good making your best set, I got such good station. I get New York, Atlanta, Ga., Minnesota and II other out-of-town stations. Herman Stephen, 1840 Halford, ANDERSON, Ind. — "Received order and have set made. It is O. K. for John L. Wilson, 659 East Missouri St. EVANSVILLE, Indiana, Nov. 27, 1944."Your crystal set No. 3 was the most elaborate set I ever made."

INOMA
Pau White, NEW LONDON, Iowa.
Pau Haite, New London, Iowa.
Pau Seydel, 2406 Mildle Road,
DAVENPORT, Iowa, Feb. 14, 1945.—
Wishes to exchange opiniol 4, 1945.—
Wishes to exchange opiniol 311, LAKE
MILLS, Iowa, Jan. 27, 1945.—
Wishes to exchange opiniol 11, LAKE
MILLS, Iowa, Jan. 27, 1945.—
Wishes to exchange opiniol 11, 1945.
In get loads of stations on it and they come in clear and loud, too. It really is better that the stations of the come in clear and loud, too. It really is better that the come in clear and loud, too. It really is better that the come in clear and loud, too. It really is better that the come in clear and loud, too. It really is better that the come in clear and in the come in the com

away, and WMT, Cedar Rapids, 30 miles away."

Delbert Klima, R. 2, SOLON, Iowa, Jan. 2, 1945.—"Since I bought one of your crystals and made a set. I can get just as many stations as I can on the battery radio. I can get WMT about 30 miles from here, Waterloo, 50 miles, and Des Moines, 109 miles, 105 miles, and Des Moines, 109 miles, Conald Kerns, 135 Kossuth, OSCE-OLA, Iowa, Feb. 26, 1945. — "YOU MELOMITE Crystal detectors are swell."

swell."

Richard Kellenberg, GREENFIELD,
Iowa, Oct. 13, 1944.—"Received and set
up your DISTITE radio set. It works
Vincent Ehrman, R. 1-2A, ANITA,
Iowa, Feb. 3, 1945.—"Received your
crystals. They work swell. Have received stations in thirteen states."

ceived stations in thirteen states."

KANSAS.

Clay W. Gray, 327 E. 10th, NEWTON,
Kas., Sept. 27, 1944.—"I tried my crystal
with my neighbors' and your MELOMITE Crystal was far superior. It
was much louder and had a richer
tone."

KENTUCKY

KENTUCKY
Romert Stocker, Jr., VINE GROVE.
Ky., Nov. 29, 1944.—"I got very good
results with the MELOMITE Crystal
you sent me. I received WHAS Louisville. 35 miles away: WLW Cincinnati,
100 miles away: WSM Nashville, 110
50 miles away:
W. B. Thompson, Box 299, DANVILLE, Ky.—"I just made radio, No1 and right away got WHAS 65 miles
away."

away." LOUISIANA

Wayne Banentine, R. 1, Box 81B. WEST MONROE, La., Jan. 9, 1945.—'I have built your crystal set No. 1 and find it very satisfactory."

MAINE
Douglas Gorman. 81

MAINE STANDARD ST. Ocean St. S. PORTILAND Maine. — "Fellowing your instructions, my father and I made a radio. My father used to build them, but this was louder than any he ever built of this size. I took it to bed with me, and my brother and bed with me, and my brother and it was still as loud as ever. I'd rather listen to it than a big radio."

MARYLAND

A. R. Troutman. 3545 Greenment.

MARYLAND

A. R. Troutman, 3545 Greenmount
Ave., BALTIMORE, Md., Nov. 4, 1944.
—"T built he set No. 3, with var. condensor and phone condensor plus the
MELOMITE Crystal and I was amazed
at the performance of this set. Here
in the city I have no trouble separating
the different stations (6)." MASSACHUSETTS

Milton Cahoon, PLEASANT LAKE Mass., Mar. 1, 1945.—"I got WLW almost 1000 miles away, in Cincinnati Ohio."

Ohio."

Stanley Karpinski, 80 Grove, CHICOPEE FALLS, Mass., Jan. 24, 1945.—"

Here Stander of as before cynal than
the MELOMITE Magic Crystal. I like
crystal sets better than a radio because
when you go to sleep nobody but you
can hear it."

MICHIGAN

MICHIGAN
Harry P Burgart, Box 33, UNION
CITY, Mich., Dec. 21, 1944. — "The
MELOMITE Crystals are fine. An
getting up to 600 miles with them."
James Fontlow, 641; N. Broadway,
MT. CLEMENS, Mich., Nov. 3, 1944.—
"I made your crystal sets Nos. 1, 2 and
BIRMINGHAM, Mich., Oct. 20, 1944.—
"I made your crystal sets Nos. 1, 2 and
of the property of the pr

MILE Crystal is one of the best I have ever used."

R. Hess Garlough, 1712 Ray St. MUSKEGON, Mich., Jan. 12, 1945—"I was steeper me the pleased with the state of the state of

with the parts I received from You.

MINNESOTA

DeLoss Tanner, Box 66, BROWNSDALE, Minn, Nov. 9, 1944.—"We have
made a MELOMITE Radio, and have
received 16 stations in Minnesota,
Texas, Missouri, Kentucky, Pennsylvanta, Chicago, Michigan, TemessLowa, Ohio, and S. Dakan, We get
good reception even in daytime."

results from it. I have received WEEC Memphis, WLAC Nashville, WML, New Others, XEG Mexico and several others, XEG Mexico and several others, XEG Mexico and several Johnny Leverette, Jr., 503 Second St. GRENADA, Miss., Dec. 16, 1944.—"I made set No. 1 with your crystal and pilles and received Greenwood, 35 made set No. 1 with your crystals and pilles and Assahville station, over 200 miles away, and a Nashville station, over 200 miles away. Your crystals are really good.

Miss. Received the two crystals today. Miss. Received the two crystals today. Many thanks for your kindess and prompt attention."

Elmer Clark, KREOLE Miss. Jan. Elmer Clark, KREOLE Miss. Jan. SENSTITUE THE MELOMITE FOR SENSTITUE THE MELOMITE FOR SENSTITUE GRAVE AND MISS. These included WSM, Nashville, and WMISSON W Orleans."

WWL, New Orleans."
MISSOURI
Billy Weber, Rt. 2, Box 100, LIB-ERTY, Mo., Feb. 22, 1945. "The MELO-MITE Crystal is the best I ever had I get Nashville, Tenn., which is 475 miles away."

I get Nashville, Tenn., which will sa way."

Jimmy Owens, MEXICO, Mo., Mar. 6, 1945. Your silver GALENA Crystals are excellent. I have received stations from 45 to almost 1,000 miles away, all of which are very clear."

Larence J. Berg. t. 2, ST. Charlence J. Berg. t. 2, ST. Owens are radio still like a crystal set. Good crystals are hard to find."

NEBRASKA

Cood crystals are hard to find."

NEBRASKA.

Eldon E Vayra, 1820 Q St., Ord. Neb., Sept. 28, 1848. "I received your MELO-MITE Crystal and was sure surprised at the volume. With your MELOMITE Crystal I can get KMMJ, Grand Island. Crystals, but your MELOMITE Crystal I can get KMMJ, Grand Island. Crystals, but your MELOMITE has them all beat for performance."

I. A. Rosenburg, 1165 N. 9th St., Beatries, Neb., Dec. 31, 1944. "Had the MELOMITES and will say they are hard to beat."

Paul Jeske, CURTIS, NEB., Oct. 26, 1944. "I am thoroughly satisfied with unusual reception."

Edward Huff, Box 254, Minatare, Paul Jeske, CURTIS, NEB., Oct. 26, 1944. "I am thoroughly satisfied with unusual reception."

Edward Huff, Box 254, Minatare, Web., Feb. 12, 1945. "Parts I received for the control of the contr

try."

Bob Albers, WISNER, Neb., July 8, 1942. "Please send me two more of your famous MELOMITE Radio Crystals. I have been getting fine results."

NEW HAMPSHIRE

NEW HAMPSHIRE

Lloyd H. Dunham, 115 Roxbury,
KEEKE, N. H. Feb. 5, 1945. "I had
wish to try No.! The New York
NEW JERSEY

Stephen Balog, Jr., 374 Green St.,
WOODBRIDGE, Datas I received from
you are the best I have ever had."

NEW YORK

Bud Ruger, 50 Delaw.

No TORK

Bud Ruger, 50 Delaware, Free L. I., New York, "I have one of MELOMITE Crystals and it has swell results,"

Swell Iesuits,"
Lawrence Miller, 174 W. Post Rd.,
WHITE PLAINS, N. Y. "I can get
WHN, WABC, WEAF, WFAS, and
WIZ, using a set with MELOMITE
Crystal." Crystal."

David Millar, 312 W. 109 St., NEW YORK, New York, Nov. 26, 1944. "I made your crystal set and it works wonderfully."

wonderfully."
Robert Goldschmitt, 219 Davis St. SYRACUSE, N. Y. "Your crystals are wonderful."

SYRACUSE, N. 2. Told crystals aire wonderful.

Oryell, 795 Ocean Ave., BROOKLYN 26, N. Y., Dec. 13, 1944.

"My son received your MELOMITE Crystal and we find it very good. In this neck of the woods we are surrounded by high power transmitters, so we have to have very select sets. Jerry L. Brooker, R. 1941.

J

set WGY with amazing volume. It is 50 miles away. Am planning to build your Crystal set No. 3 as I know it will be a success as is your business 100 per cent okay."

110 per cen

OHIO

Mrs. Jacob Flick, Rt. 1. CLEVES, O.,
Jan. 4. 1944. "I have been using your
crystals and think they are flow we
can't get tubes or batteries for other
radios so we have to use a crystal set."
Donald Mossman, 4225 Champa,
CLEVELAND, O. "Received your crystal detector. I can get WWVA, 175
miles."

CLEVELAND, O. "Received your crystal detector. I can get WWVA, 175 miles."
Ray Schnellinger, 39 Newton, St., NORWALK, O. Jan. 13, 1943. T. yan in the second of the second

Cadet G. Claussen, Hill Military Ac., PORTLAND, ORE, Dec. 15, 1944. "I wish to express my satisfaction about the crystal you recently sent me."

Earl Wright, Box 575, NEWBRT.
Earl Wright, Box 575, NEWBRT.
Crystal is the most sensitive crystal I have ever tried."

PENNSYLVANIA

have ever tried."

Jim Young, 802 1st Ave., ALTOONA,
Jim Young, 802 1st Ave., ALTOONA,
A. Feb. 19, 1945. "I received my
MELOMITE Crystal Feb. 12, 1945. Put
Henry S. Miller, care of Washington
Library, 638 Penn St., READING, Pa.
Espet, 28, 1944. "Have just received the
MELOMITE Crystal and am very
pleased with same." Hillerest, UNION—
Dick Malone, 46 July 1944. "I have
beautiful all your crystal sets and have
built all your crystal sets and have
had excellent reception. I think your
parts and crystals the best on the
market. Thank you."

END JO Walme, 40 W. Main St.
CONTROL PROPER STATES AND STATES AND STATES

LONG NO. I Crystal set and am greatly
pleased. I received strong and clear
signals from three different stations
in Chicago which is more than 650
miles from here. Have also received
miles, all o'mich and Boston, 20
miles, all o'mich and Boston, 20
miles, all o'mich and Boston, 20
miles, all o'mich came in very
Richard Gardner, 1209 W. 8th, ERIE,
Richard Gardner, 1209 W. 8th, ERIE,

clearly."
Richard Gardner, 1209 W. 8th, ERIE,
Pa., Feb. 15, 1945. "I made Crystal Set
No. 3 and am very satisfied. Made
three sets to sell and made a profit of
\$1.50."

three sets to sell and made a profit of the St. 50. alcs English, 683. Third, WILLIAM CHARLES CH. P. Sept. 20, 1944. "Your MELOMITE Crystals are a bargain at 25 cents."

Ray Cook, Jr., 1923 Middle St., SHARPSBURG, Pa., Oct. 24, 1944. "I have one of your crystals in my radio and it gives very satisfactory receptions of the St. SHARPSBURG, Pa., Park 2, WORTH-INGTON, Pa., Feb. 18, 1945. "Your

TENNESSEE
James L. Turnbull, DAISY, TENN.,
Oct. 4, 1944. "I should like my name
in Magic Crystal, so I may correspond
with other fans."
Boyd White, Blaine, Tenn., Feb. 9,
1945, "I put your MELOMITE Radio
crystal and homemade radio and recrystal and processed and reclabout 2,500 miles)."
TEYAS. TEXAS

(about 2,500 miles)."
TEXAS

Carl Berglund, Shreveport Road,
MARSHALL, Texas, Feb. 23, 1945. "I
just received the crystal I ordered
from you, tried it out, and got swell
results."
Castanon, 1403 N. Sabinas,
SAN ANTONIO, Texas. "I made Crystal Set No. 2 and used MELOMITE
Radio Crystal. The first might I got
KMOX, St. Louis, Mo., XEWW, Mexico,
KWKH, Shreveport, La, and others,
For a crystal set that is really somefive the state of the crystal red
Alvis Everett, FLORENCE, Texas,
Jan. 22, 1945. "I have a-crystal radio
that is very good. I got the crystal
from you."
Harsen, 2701 E. Yandell, EL,
PASO, Texas, Feb. 7, 1945. "Wish to
acknowledge receipt of order. Everything completely satisfactory,"
JARVIS Rosenbaum, Rt. 1, ROSENgeneral station clearly over 150 miles away on
such castanon service."
Vermont

VERMONT

Robert Kent, MANCHESTER, Vt., Feb. 27, 1945. "With the first MELO-MITE Crystal I used I could get New York City, 200 miles away." VIRGINIA

VIRGINIA

Karl Schellenberg, 2637 Military Rd.,
ARLINGTON, Va., Oct. 2, 1944. "Just
got your crystal and information,
built set and works 100 per cent better
than with old crystal the St. N. E.,
ROANOKE, Va., Oct. 24, 1944. "Teceived my crystal and have completed
my set. It works well. I can use a
loud speaker on local receptions."

Brantly Bart, Jr., 302 Linden Drive,
DANVILLE, Va., Feb., 1945. "Your
DANVILLE Crystals are the very best
more "Ver used. Please send me three
WASHINGTON."

WASHINGTON

BILLY KIME, 202 E. Meeker, PUYAL-LUP, WASH. "Received pocket radio parts and put radio together. It works wonderfully." WISCONSIN

Michael McMullin, Centreville, Reserve Mines, C. B. N. S., Canada. "The crystals I received were wonderful. I can get CBS in the U. S. A. They yet. People would hardly believe that you would receive stations such a long distance away."

long distance away."

Bob Marwood, Manle, Ontario, Canada Pob. 2, 1945. "I wish to say that
MELOMIZE Crystals are the best I
ever used. The first time I put one
in my set I got several stations I could
not get before."

Bruno E Derres, 1st Ave. E. DebBruno E Marwood, Oct 12, 1944.
"Crystal worked line. Please send another,"

James Anderson, 3 Nivan St. New Liskeard, Ont., Canada, Dec. 27, 1944. "I made your Distite Crystal Set No. 1 and got Minneapolis and St. Paul, about 700 miles distant."

#### Questions and Answers

(Continued from page 3)

Q. How long should the aerial

A. This depends upon the wave lengths to be received. The aerial wire should be about 100 feet long for moderate length waves and 300 feet long for long waves. With the lead-in wire, lengths will be 40 to 60 feet longer.

Q. How high should aerial be?

A. In general, the higher the better. We advise having your aerial 40 feet high at least, how-ever, lower heights are satisfac-tory in most cases.

Q. Can a gas pipe, fire escape, drain pipe, etc., be used for an aerial?

phone hooks, outside metal parts phone hooks, outside metal parts of light fixtures, etc, may sometimes be used for aerial providing the broadcasting station is not too far away. A regular aerial always gives the best results.

Q. Where should lead-in from aerial be connected?

A. It should be connected at point closest to location of your

Q. What kind of wire should be used for Aerial?

A. Any kind of copper, bronze or aluminum wire may be used. Stranded wire seems to give bet ter results than solid wire as more surface is exposed. Iron wire can even be used in some cases, although its use is not recommended for best results.

Q. How can I eliminate stations

A. In some cases any one of them might be used and some persons report fair results using them. Bed springs, screens, tele-

merial strung below the regular aerial. This wire should be at least as long as the regular aerial and should be from six to eight feet above the ground. Use regular stranded copper aerial wire and insulate well at both ends with aerial insulaters and use insulated wire for the lead wire to set. This lead wire is connected to the ground post of set. You now have two aerials, one below the other. Tuning is sharpened considerably by this arrangement.

Q. Do you guarantee that I can hear stations hundreds of miles away by using Melomite Crystal in my set.

A. No, we are unable to guarantee such results due to some localities not being suited for distance reception. However, we do guarantee that you will be satisfied or will gladly replace any of our products that are not perfectly satisfactory.

A. Insulated copper wire makes a very good aerial. It is not nec-essary to remove the insulation. Be sure the insulation is removed at point of connection to lead-in.

Q. What is the function of a variable condenser in a crystal set circuit?

A. It is used to vary the wave length range the set will respond to. If the condenser is placed in series with the aeral or ground the wave-length will be decreased. If placed in parallel or across the tuning coil the wave-length range will be increased.

Q. The instructions for making a simple crystal set as shown on back of MELOMITE Crystal card calls for 25 feet of wire in coil. What would be the result of less or more wire in this coil?

A. The tuning effect of this coil depends both on the length of wire and the varying capacity effect of opening and closing the coil, book fashion. More wire in using more.

the coil will increase the wave-length range, less wire will de-crease the range. We advise that you try various length of wire in this coil until you find a length which gives you best results.

to the aerial of an electric radio and have satisfactory results?

A. No. The aerial when connected to an electric set is grounded through the R. F. Coil and you will be unable to receive any signals with your crystal set. However, if you will connect your electric set to the aerial through a small condenser, say .00025 mfd capacity the aerial may then be used for your crystal set. It is best to disconnect aerial whre from electric set when using crystal set on aerial.

O. How many wires are neces. A. No. The aerial when con-