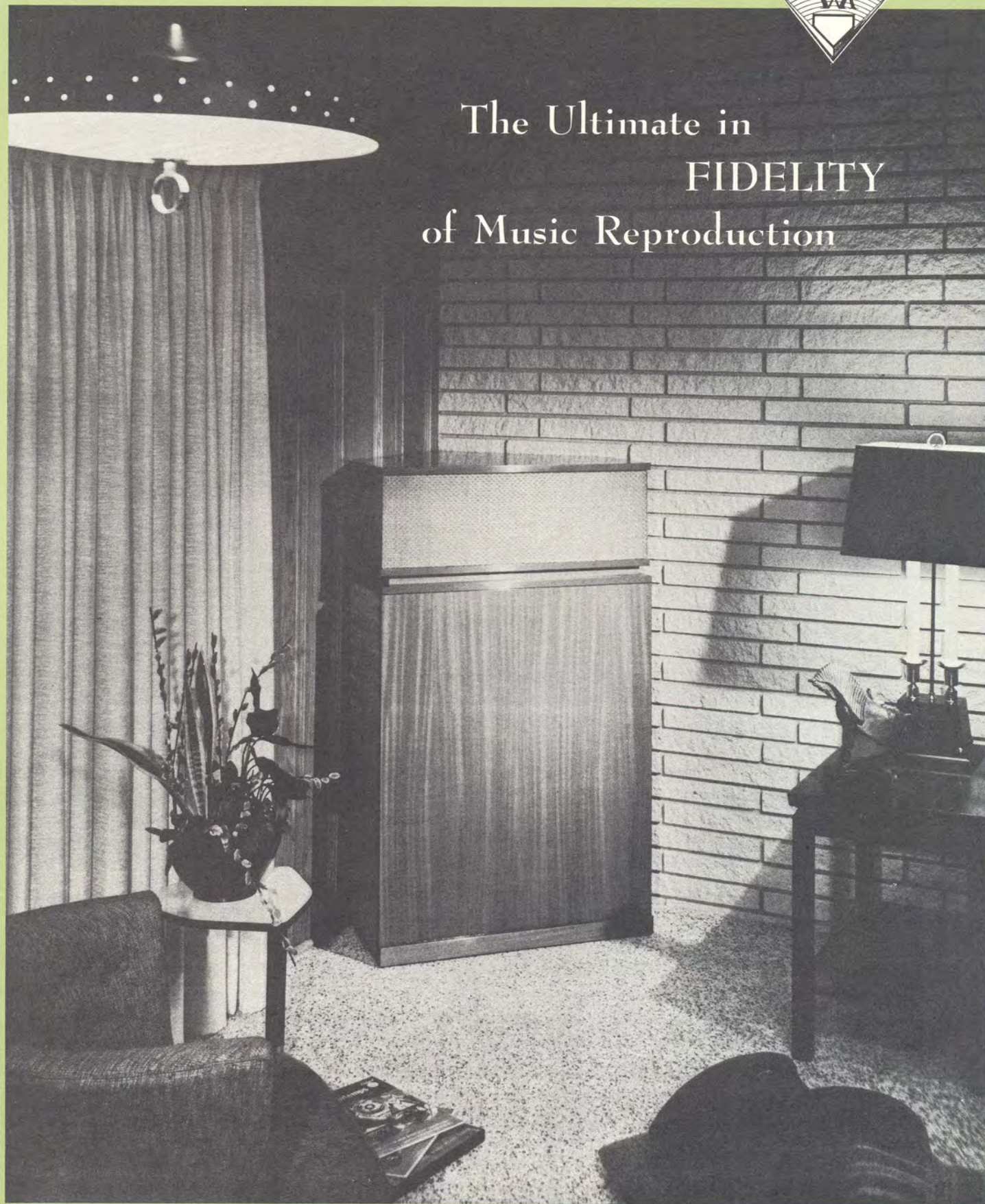


KLIPPSCH

CORNER HORN LOUDSPEAKER SYSTEMS



The Ultimate in
FIDELITY
of Music Reproduction



You are in the C

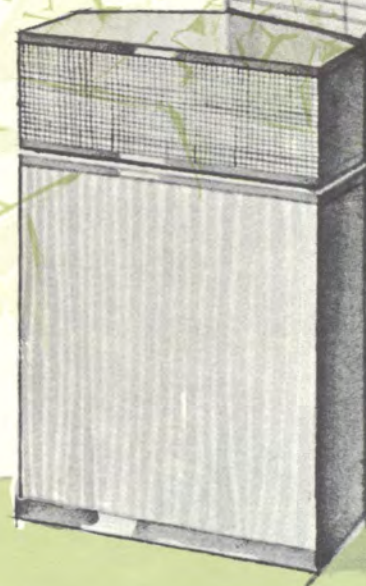
KLIPSCH

CORNER HORN LOUDSPEAKER SYSTEMS



Concert Hall...

AT HOME



FROM THE MASSIVE BREADTH of a symphony orchestra or organ to the intimacy of a string quartet or soloist, the entire palette of musical colors is reproduced through Klipsch loud speaker systems just as you would hear them in the original performance.

Throughout their extended range—more than the human ear can hear—Klipsch loudspeaker systems respond with definition of tone and freedom from distortion. The bass is true without boom, the treble accurate without artificial “hi-fi” effects, the middle range precise without muddiness. For Klipsch systems are more than just “high fidelity” speakers—they offer the nearest approach to true sound reproduction yet developed.

Designed for discriminating listeners, Klipsch loudspeaker systems have become the acknowledged standard of all loudspeakers—the choice of famous conductors and recording artists.

FIDELITY...not "HI-FI"

THE SPECTACULAR SOUND EFFECTS sometimes associated with “High Fidelity”—exaggerated bass and over-accentuated trebles—are not fidelity, but are distortions of the original sound. If reproduced music is to be as nearly identical with the original as possible, the creation of sound which is spectacular or sensational must be left to the recording artist—not to the sound reproducing system. For if a loudspeaker system is to have fidelity it must not produce new sounds of its own—it must unobtrusively REproduce the original. And that

is the one thing Klipsch loudspeaker systems have been designed to do.

In testing Klipsch systems, we supplement complete laboratory analysis with listening tests. In these tests, critical listeners are asked not merely “Does it sound good?,” but are asked to compare recorded sound, played through a Klipsch loudspeaker system, with the original sound, ranging from solo violin to full symphony orchestra. Usually, from one half to three quarters of the audience is not able to distinguish the difference.

Klipsch Designed Horns — *offer smooth nine-octave*

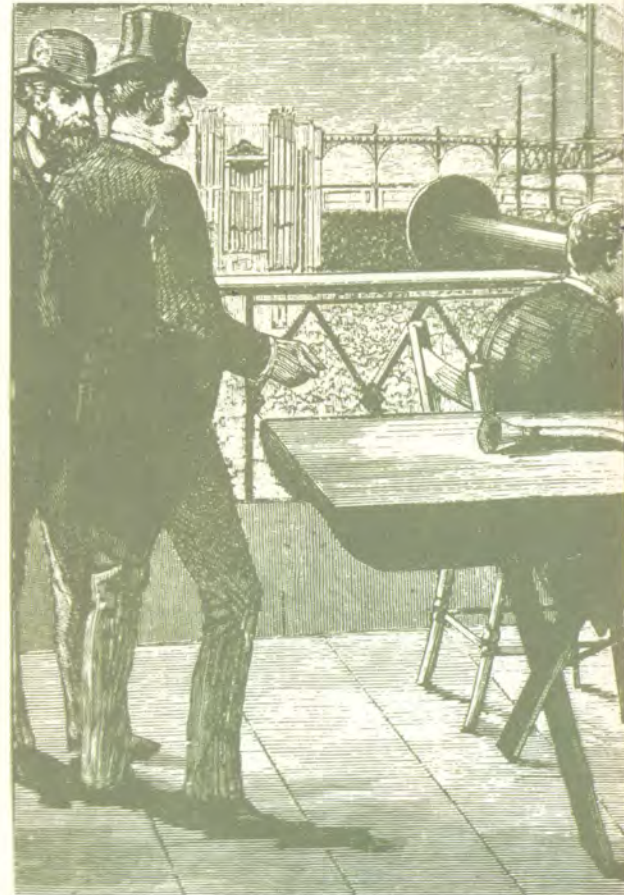


THE ACCURATE REPRODUCTION OF SOUND has been a major objective ever since Thomas Edison first attached a tin horn to his primitive phonograph. In adapting this simple expedient, Edison was nearer to the true solution of the problem than even he realized, for the horn type loudspeaker has been proven the best yet developed.

For years scientists have known of the high efficiency of the exponential horn, designed according to a formula of expanding cross sections. Exponential horns have been designed which can handle the big 32-foot wave lengths of the deep organ pipes or the bass viol. The difficulty though is that one of these horns, to do the job, must be as large as a modern living room.

To this important problem, PAUL W. KLIPSCH gave his attention in 1940 and, after years of research, he has developed the Klipsch type corner horn loudspeaker systems. These systems have the required air column for reproducing the deepest notes and steepest wave fronts, yet demand but small space in a living room. They achieve this by making the corner walls of the room part of an intricate folded horn.

It was discovered that the room corner afforded an advantage which made possible the reduction in size of the horn while still providing a sufficient air column for low "C" on the organ. The discovery was that the three surfaces of corner walls and floor have a mirror effect, producing reflections of sound waves and multiplying their effective length. The combination of corner horn and corner mirror effect made



An 1880 version of a "Hi-Fi" recording session using a horn on an early cylinder recording phonograph.

KLIPSCH

- Folded and Straight Axis -

response

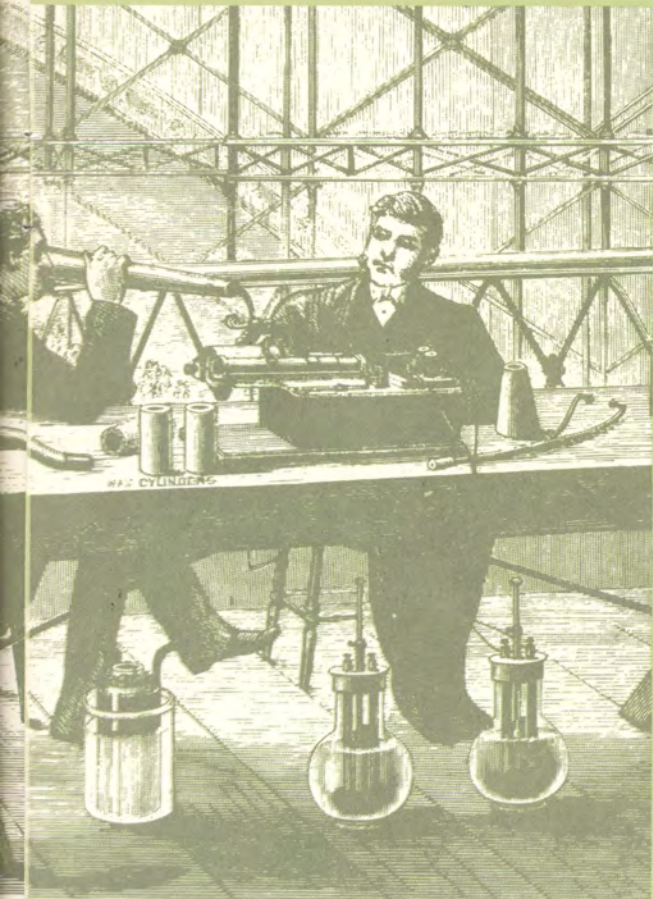


Fig. 1

it practical for the first time to build a loudspeaker system of moderate size which would reproduce audibly the lower octave and a half of the nine octaves we are able to hear.

The corner horn design also offers improved reproduction of middle range and high notes as well as the bass notes. In these upper ranges sound travels in straight lines from its source. A listener, to hear the whole of the recorded music in proper balance, must be within direct range of the horns reproducing the higher frequencies. When speaker systems are placed anywhere except in corners there are usually large dead areas in the room which are never reached by many of the higher frequencies, or at best are reached only by weakened, distorted reflections of them from walls and furniture. Only corner placement affords optimum distribution of treble notes throughout the room without noticeable hot spots, dead spots, or room resonance.

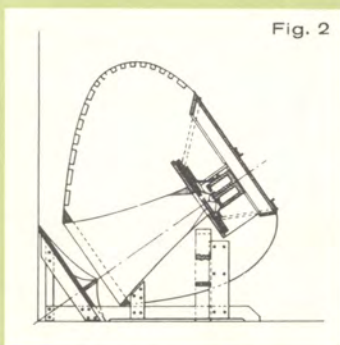


Fig. 2

The first corner horn of potentially wide range was this trihedral horn, patented in 1934 by Sandeman and referred to in PAUL W. KLIPSCH's first paper on corner horns in 1941.



Fig. 3

The patent for this prototype of the present KLIPSCHORN bass horn was filed by PAUL W. KLIPSCH in 1940.

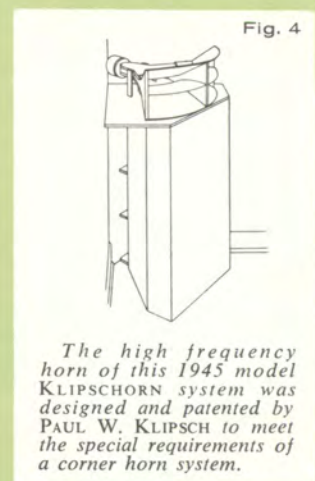


Fig. 4

The high frequency horn of this 1945 model KLIPSCHORN system was designed and patented by PAUL W. KLIPSCH to meet the special requirements of a corner horn system.

Result of Intensive RESEARCH

KLIPSCH SOUND REPRODUCERS are the result of seventeen years' research and development by the acoustics and electronics authority, PAUL W. KLIPSCH. The horns, designed and patented by Mr. Klipsch, have set new standards for the entire field of sound reproduction. Drivers have been chosen only after thorough testing of principal foreign and domestic makes.

KLIPSCH Corner Horn Design

THE HORN PRINCIPLE is most simply explained by comparison with a piston pump. A piston, sloshing up and down in the middle of a lake by itself fails as an effective pump. An open cone speaker, sloshing the air in a room, fails as a sound generator especially at wave lengths larger than the diameter of the cone. But put a cylinder around the piston and it becomes effective as a pump; properly match a horn to the vibrating diaphragm and it becomes an effective speaker. The resulting increase in efficiency minimizes distortion. The advantage of utilizing a corner as part of the horn is that it provides a large radiator area to propagate long wave lengths.

THE PRINCIPLE OF MIRROR IMAGES employs reflections of sounds from the walls and floor (or ceiling) of a corner. The reflections produced by two walls doubles the wave length capability, adding an octave to the bass range. And the floor or ceiling increases the range by still another half octave.

This is how Klipsch corner horn design permits propagation of the long sound waves of deep bass notes from a loudspeaker system small enough to fit into the average room.

Place in Best Available Corner

For best results, install your Klipsch corner horn loudspeaker system in a corner which affords the most unobstructed wall space. Irregularities should not exceed those shown in diagram. Recommended maximum and minimum spacing may be violated with resultant loss in performance, depending upon degree of violation.

Keep the corner of the top pushed into the corner of room walls. Draperies, if any, should be pushed flat. They are entirely permissible so long as they leave sound passageways clear. It is recommended that nothing be set on top of the system, such as vases, bric-a-brac, ash trays, etc.

COMPONENTS AVAILABLE SEPARATELY

KLIPSCH COMPONENTS for assembly by the owner or for improvement of present systems are also available. See price list.

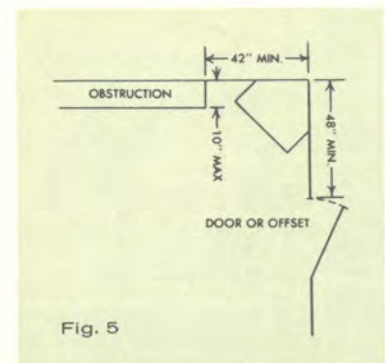


Fig. 5

NOTE: An artificial corner may be built to accommodate the Klipsch speaker, but maximum efficiency is achieved by use of natural corners.



FIG. 6

To VISUALIZE the function of a room corner as part of a speaker system, first picture a lamp and a mirror so disposed that the mirror image doubles the amount of light in the wanted region.

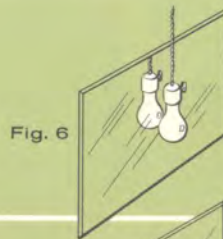


FIG. 7

NEXT, IMAGINE a horn speaker with one flat side against a mirror wherein the radiating area is effectively doubled and consequently enabled to handle longer wave lengths.

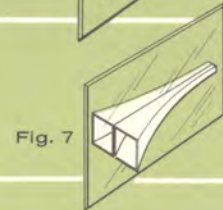
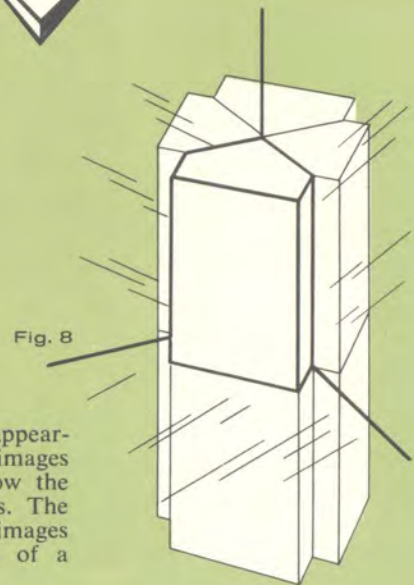


FIG. 8

FINALLY, LOOK at the actual speaker in the corner of a room, and imagine the appearance if the walls and floor were optical mirrors; there would be three mirror images of the real speaker above the floor and four more below the floor. This is how the KLIPSCHORN and SHORTHORN systems handle 32-foot and 24-foot wave lengths. The SHORTHORN Model S housing, for example, is only three feet high but its mirror images lend it the six feet needed to propagate the 6 x 4 or 24-foot wave lengths of a 50-cycle tone.



BALANCED FOR TYPICAL ROOM ACOUSTICS

KLIPSCH SYSTEMS are designed and tested for uniform response under typical conditions. The three horns in each are properly balanced in the Klipsch laboratory, requiring no adjustment by the owner. Where unusual room acoustics present a problem, it is recommended that the room be corrected with the addition of draperies, carpeting or other absorbent material. In occasional instances, changing the speaker from one corner to another is advantageous.

Any attempt to insert "presence" controls, pads, or attenuators in a loudspeaker system would merely introduce distortion. Their use would be comparable to asking the recording artists to play extra loud or extra soft within a specified range of notes.

TECHNICAL BIBLIOGRAPHY

The scientific background of the KLIPSCHORN and SHORTHORN systems is well established. The following bibliography contains the more important papers by Paul W. Klipsch pertaining to it. References include an extensive bibliography of the related arts.

- "A Low Frequency Horn of Small Dimensions," Journal of the Acoustical Society of America, Vol. 13, No. 2, Oct., 1941, pp. 137-144. *
- "Improved Low Frequency Horn," Journ. Acous. Soc. Am., Vol. 14, No. 3, Jan., 1943, pp. 179-182. *
- "A Note on Acoustical Horns," Proceedings of I. R. E. Vol. 33, No. 7, July 1945 pp. 447-449. *
- "A High Quality Loudspeaker of Small Dimensions," Jour. Acous. Soc. Am., Vol. 17, No. 3, Jan., 1946, pp. 254-258. *
- "The Klipsch Sound Reproducer," FM and Television, Sept. 1947.
- "Progress in Klipsch Speakers," FM and Television, Nov., 1948.
- "New Notes on Corner Speakers," FM and Television, Aug., 1949.
- "Response and Distortion," FM and Television, April, 1950.
- "How to Get Best Results from a KLIPSCHORN," High Fidelity, Summer, 1951.
- "Loudspeaker Developments," Transactions IRE-Prof. Group on Audio, Vol. 1, No. 3, May-June, 1953, pp. 16-21. *
- "Small Corner Horn Systems," Radio Electronics, July, 1955, pp. 72-74. *
- "Experiences in Stereophony," Audio, July, 1955. *
- "Making Stereophonic Tapes," Hi-Fi Music at Home, November-December, 1955.
- "Impedance in Multi-Speaker Systems," Audiocraft, May, 1956.

* Copies available from Klipsch & Associates, 25c each.

REGISTERED TRADE-MARKS

KLIPSCHORN and SHORTHORN are registered trade-marks of Klipsch-designed loudspeaker systems, built exclusively by Klipsch and Associates, Hope, Arkansas.

PATENT NOTICE

Klipsch-designed loudspeaker systems are protected by the following patents: 2,238,023, 2,310,243, 2,373,692, 2,537,141, 2,612,558, 2,731,101, D 153,700; Canada 434,974 and pending applications.

Electro-Voice, Inc. of Buchanan, Michigan, manufacturer of high quality microphones and loudspeakers, builds the "GEORGIAN," "PATRICIAN," and corner-horn back-loading models licensed under some of the above patents.

The Northern Electric Company of Montreal, Canadian affiliate of the Western Electric Company, enjoys Canadian manufacturing rights.

Vitavox Ltd., of London, England, British loudspeaker manufacturer, has acquired English manufacturing rights.

The G and H Wood Products Company, of 75 North 11th Street, Brooklyn 11, New York, manufactures the "REBEL" series which were designed especially for them. Both the design and trade mark are under license from Paul W. Klipsch.

NOTE: A license under a patent does not imply that the licensed product is a copy, nor made to standards stipulated by licensor, but merely that the licensee acknowledges dominance of the patent relative to certain ideas basic to the structure employed. Thus, neither Paul W. Klipsch nor Klipsch & Associates offer any guarantee for any product made under Klipsch's patent license.

Klipschorn® CORNER HORN LOUDSPEAKER SYSTEM

The Ultimate in FIDELITY
of Music Reproduction

CREATED FOR THOSE WHO APPRECIATE the finest, the KLIPSCHORN system has been produced without regard for expense to offer the closest possible identity with original sound.*



Fig. 9

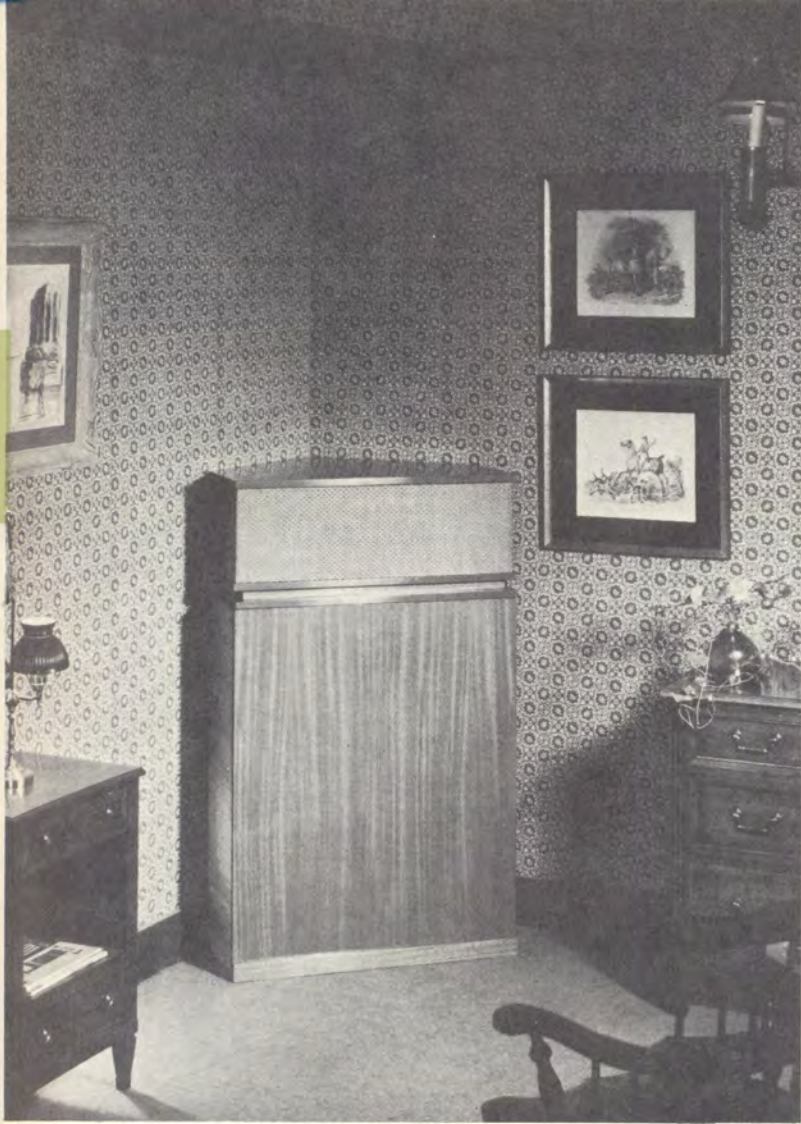


Fig. 10

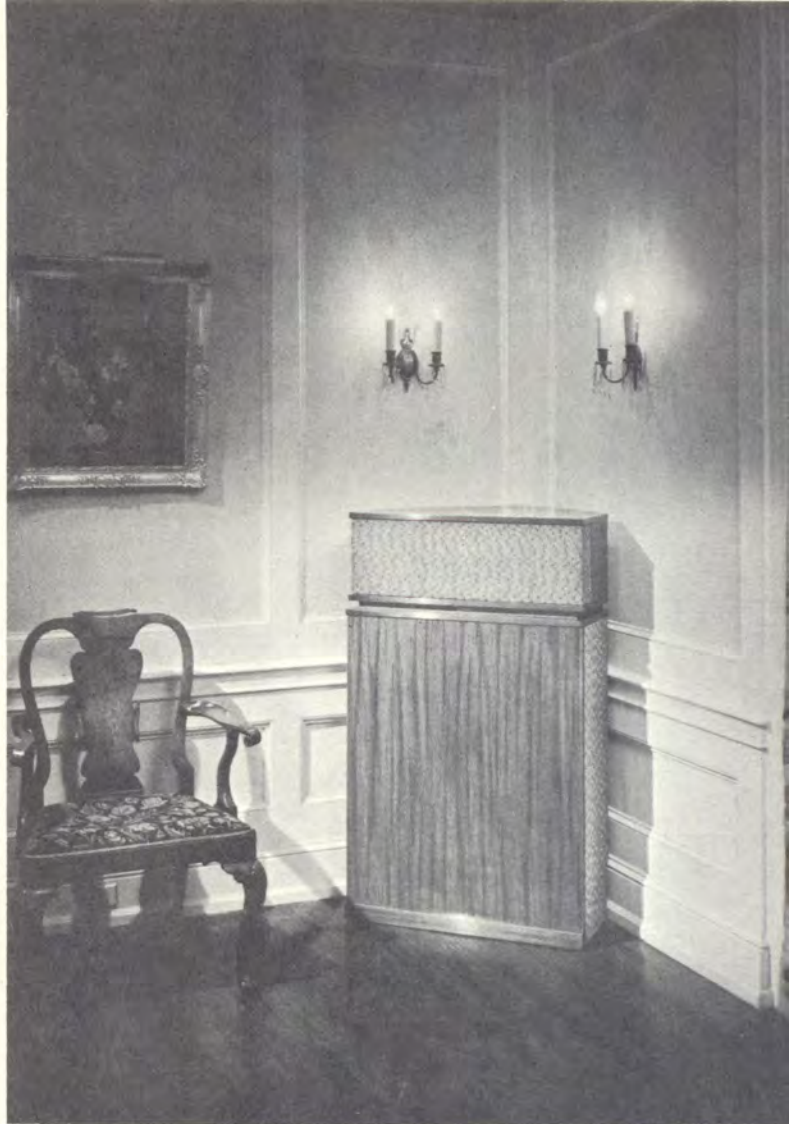


Fig. 11

Styled for ANY Setting

KLIPSCHORN SPEAKERS are offered in a variety of styles and finishes including dark and light mahogany, blond prima vera,* birch, and fir; colors from blond to dark and finishes from hand-rubbed to unfinished. Their form is an expression of function and, like that of the grand piano, offers a unique idiom of design.

UNFINISHED MODELS are available for custom installation by architects and decorators or where the owner wants KLIPSCHORN quality at low cost.

**Prima vera is an exotic imported hardwood, naturally blond, with grain structure resembling ribbon-stripe mahogany.*

IN THE KLIPSCHORN SYSTEM we use three carefully matched horns which complement each other. We have settled on the use of these three horns with their individual driver units because our tests show that this combination affords the smoothest response of any combination tested. And we have tested practically every principal make of driver, foreign as well as domestic. If the addition of more speakers would improve the reproduction we would add them. If the driver units were available which are superior to the ones we use, we would readily substitute them. If the insertion of controls would increase fidelity we would insert them. But we have found that these extras do not contribute to the fidelity of reproduction — they merely create artificial “Hi-Fi” effects which are distortions of the original.

Klipschorn®

CORNER HORN LOUDSPEAKER SYSTEM

CUTAWAY MODEL of KLIPSCHORN system shows exponential sound passages and back air chambers of bass horn, and section of mid-range horn. The high frequency horn and driver can be seen through the section of the mid-range horn.



Fig. 12



Three Matched Horns

Bass (or Woofer) THE BASS HORN, of folded corner horn design has an air column sufficient to reproduce, without distortion, the lowest note on most pipe organs and it maintains flat response up to the top of its assigned range, about "B" above middle "C" in the music scale. No other bass speaker of comparable size has ever been able to achieve this. Miniaturized bass speakers have been attempted but so far no one has invented a miniature 32-foot wave length.

In design the bass horn is substantially exponential in expansion, actually comprising a series of wedge-shaped spaces which approximate the exponential expansion to a very close degree.

ACOUSTIC DATA

Nominal exponential flare rate, 40 cycles; deviation from exponential rate less than 0.01 wave length; lower and upper effective cut-offs with proper drive unit, 28 and 550 cycles; upper crossover used, 500 cycles; peak conversion efficiency is over 80%, trough efficiency over 50%; available acoustic power from qualified 10 watt amplifier is over 3 watts. A very important design consideration is the short radii of bends in the horn, permitting propagation of wave lengths as short as 18 inches corresponding to frequencies as

high as 750 cycles per second, making the recommended crossover of 500 cycles conservative. Only by twin passages can this be accomplished. Attempts in 1940 to achieve the results by a single sound path proved futile. The throat is the upper limiting design element.

CONSTRUCTION

Rigidly braced plywood, grade A-B (marine grade in marine models), is assembled with nearly 2 gross of screws, plus other fastenings, with high grade adhesives on all structural joints. The system is free from air leaks, a mandatory requirement for peak-free response, and extremely solid, more than fulfilling the basic requirements that a horn be "a reasonably rigid boundary for an air column" (A. G. Webster, inventor of the exponential horn).

DIMENSIONS, SHIPPING WEIGHT, AND FINISHES

Available in Economy Model (unfinished fir) or Laboratory Model (finished or unfinished birch), with or without drivers, as part of complete KLIPSCHORN 3-way sound reproducing system, or as woofer horn only. Height of woofer horn only 38½ inches, frontal width 31¼ inches, length diagonal to corner 28¼ inches. Shipping weight of bass horn, without driver, is approximately 80 lbs.; with driver approximately 110 lbs.

DRIVE UNITS

Stephens 103-LX-2 or Electro-Voice 15 W-K. These motors were designed especially for use in the KLIPSCHORN type bass horn.

D C resistance 3.6 ohms.
Impedance 16 ohms.
Impedance variation from normal is less than a factor of 2.5 up or down.

Mid-Range THE MID-RANGE SYSTEM operates from "B" above middle "C" up to a little beyond the top "C" of the keyboard. Of straight axis design, the horn is free from distortion characteristic of folded horns. This horn, which required even more development time than the Klipsch bass horn, accounts for the exceptional clarity of the KLIPSCHORN system in the range where most of our listening experience occurs.

Normally furnished as a component of the complete speaker system, the K-5 horn can also be furnished separately, with or without driver.

ACOUSTIC DATA

A nominal taper rate of 330 cycles with effective cutoff of 280 cycles permits use of a 500 cycle crossover. The upper cutoff of the horn is close to 40,000 cycles. With the drive unit used (SAHF) the measured response bracket is between 6 decibel limits between 490 and 3500 cycles, with some additional loss at 5000 cycles.

CONSTRUCTION

Curved parts of horn are polyester resin with fabric and cellulosic filler, assembled to wood sides. The novel asymmetric expansion affords uniform distribution over a horizontal angle of 90° and a vertical angle of 60°. Molded feet and a metal bracket are provided to facilitate easy mounting. The current Model K-5-J is a monocell with measurable improvement over the already excellent polar pattern of the earlier multicell. The horn is supplied with our 87 throat adapter (0.87" diameter) and 87R adapter ring. (Other throat adapters are available for

special and research applications.) Center mouth brace is drilled to facilitate mounting of recommended tweeter.

DIMENSIONS AND SHIPPING WEIGHT

Height 9 inches, width 25 inches, overall length depends upon driver used. The horn and recommended driver combination fits on top of all KLIPSCHORN MODEL K-3 woofer horns, without overhang. Shipping weight of the horn and adapter only, is approximately 13 lbs.

High Frequency THE HIGH FREQUENCY SPEAKER is a horn type tweeter carefully selected for type and quality, mounted and ensemble tested by the manufacturer. It gives natural rendering of tones from high "C" to beyond the limits of hearing, without artificial exaggeration or peaking of the ultra high frequencies.

ACOUSTIC DATA

The tweeter driver and horn (4401) exhibit an overall measured pressure variation of only

8 decibels from 3500 cycles to 21,000 cycles, exhibiting less pressure variation and lower distortion than any other tweeter tested.

PRODUCT OF SKILLED CRAFTSMANSHIP

KLIPSCHORN SYSTEMS are individually fabricated and finished under the personal supervision of PAUL W. KLIPSCH. Acoustic elements are accurately formed and fitted in strict accordance with the authentic Klipsch design. Wood parts are made of proper grades of water resistant plywood. Structural joints are bonded with modern adhesives, and employ several gross of screws plus additional fastenings to insure the air-tight structure essential to proper back air chamber function.

FREQUENCY RANGE

Overall response of system: less than 10 decibels down at 32.7 cycles; less than 8 decibels extreme variation to 21,000 cycles. Fundamental tones

radiated down to 25 cycles. Output approximately 10 decibels higher than the best direct radiators and 20 decibels higher than some typical systems.

RESPONSE

The listening test, especially involving comparison with original sound, is accepted as final, although sound pressure curves are relied on as a research aid. Whether by response curve or comparison between speaker and orig-

inal sound, tests prove the statement "KLIPSCHORN response is more extended and uniform and less distorted than the response of any other speaker."

ADAPTABLE TO MANY USES

The KLIPSCHORN speaker system, while designed primarily for home use, is also ideal for public halls, schools, churches, libraries, studios, audition rooms, and laboratories. As a sound generator for electric organs,

it is unparalleled, giving a richness and realism to the organ never otherwise achieved. A model with motor driven tremulant is available for electric organ application.

RECOMMENDED ASSOCIATED EQUIPMENT

Because "the better the speaker the worse it sounds," unless and until all associated apparatus is free of noise and distortion, the KLIPSCHORN system imposes severe demands upon amplifiers and source material. For this reason, it is imperative that equipment of highest quality be used. Free-

dom from distortion and actual power output (undistorted) at 30 cycles is more important than published power ratings. Klipsch and Associates will answer inquiries and make specific recommendations on request. We suggest you ask before you buy.

POWER INPUT RATING

A 10-watt amplifier is adequate for home use and has served audiences up to 900 people.

Rating, continuous below 500 cycles — 15 watts.

Rating, continuous above 500 cycles — 2 watts.

Complex wave instantaneous peak, 150 watts; momentary, 50 watts.

The Hartford Symphony Orchestra was reproduced at its original loudness in a comparison with the live orchestra with only 2 peak watts amplifier power feeding each of two KLIPSCHORN systems in stereophonic array. The instantaneous peak power may be considered to have been between 4 and 6 watts in to each channel.

OBSOLESCENCE

The basic structure of the KLIPSCHORN sound reproducer is fundamentally correct; improvements in detail will undoubtedly occur, but the basic system need never be changed. With possible future changes in drive units, the KLIPSCHORN system may be kept up to date for a lifetime. Conversion kits are available to afford modern performance from early models of serial number 14 and higher.

NO KITS OR DRAWINGS

KLIPSCHORN speakers are available as complete systems and also as components. Kits and drawings are not available.

OVERALL DIMENSIONS

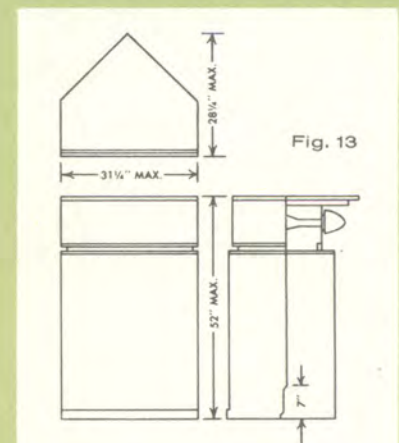


Diagram shows dimensions of the Style B. Style C is 50 1/2" high and Style U, the utility model, is 49 1/2" high. Baseboard cutout may be specified up to 7 1/2".

Since all KLIPSCHORN systems are acoustically identical, the differences between the three styles are purely in terms of appearance. For example, Style B is distinguished by an inset or "collar" at the lower part of the top housing. Style C, however, has no inset. Style U consists only of the functional components with no decorative grills of any sort. Within each style class, there

is a variety of finishes. The hand-rubbed finish is comparable to that found on the highest quality grand piano. This finish in its various shades and wood types is available only in Style B. The satin lacquer finish, which employs fewer coats and less hand work, is available in its various shades and wood types only in Style C.



Fig. 14

STYLE B



Fig. 15

STYLE C



Fig. 16

STYLE U

KLIPSCH



CORNER HORN LOUDSPEAKER SYSTEMS

KLIPSCH QUALITY...

at moderate cost

SHORTHORN* SYSTEMS EMPLOY the same general principles as the unparalleled KLIPSCHORN system to bring you exceptional range, depth and realism in music reproduction. Rich full bass without artificial resonance or boom; clean crisp treble without unnatural exaggeration; well defined mid-range which preserves the individuality of original instruments and voices — these are the characteristics which make the SHORTHORN second only to the KLIPSCHORN system.

CORNER HORN DESIGN

The body of the system is the bass horn. It combines direct radiation from the bass driver with corner horn back loading, to extend the bass range without resonance. Coordinated acoustic elements, including filters, permit exceptionally smooth response and freedom from distortion. The mid-range and treble horns are mounted in the body of the bass horn.

DRIVE SYSTEMS

Assembled models of SHORTHORN systems are complete with Klipsch K-ORTHO 3-way drive systems, using either 12-inch or 15-inch bass drivers; also available without drivers. See page 14 for details of K-ORTHO drive systems. The response

of the SHORTHORN MODEL S with the K-ORTHO-15 drive system was measured at 10 decibels down at 49 cycles. The MODEL T exhibits slightly more extended and more efficient bass than does the MODEL S.

ASSOCIATED EQUIPMENT

The same recommendations regarding amplifiers, pick-ups, tape recorders, etc., for the KLIPSCHORN system apply to SHORTHORN systems. Although SHORTHORN systems are more tolerant, permitting the use of less expensive associated

equipment, one should guard against false economy. We suggest that you consult KLIPSCH AND ASSOCIATES or your SHORTHORN dealer for recommendations on immediate needs and long range planning.

IDEAL FOR MANY APPLICATIONS

SHORTHORN systems, while designed primarily for home use, are also ideal for public halls, schools, churches, libraries, studios, audition rooms, and laboratories. The SHORTHORN speakers are especially recommended for stereophonic systems.

Since 1954 Mr. Klipsch has been demonstrating stereo with one SHORTHORN and one KLIPSCHORN preferably with the SHORTHORN on the side with less bass range.

POWER INPUT RATING

A 10-watt amplifier is adequate for home use and has served audiences up to 900 people.

The SHORTHORN is nearly as efficient as the KLIPSCHORN and therefore needs only a small amount of power to drive it. Amplifiers of 10 or 20 watts actual available undistorted power will suffice for any application encountered, and more power is not only wasteful but may be actually costly in damaging tweeter units.

Rating, continuous below 500 cycles — 15 watts.

Rating, continuous above 500 cycles — 2 watts.

Complex wave, instantaneous peak — 100 watts.

Complex wave, momentary — 50 watts.

Power input required to render sound at original loudness for most subject matter is of the order of from one to 10 milliwatts average, and from 0.1 to 2.0 watt instantaneous peak. This level is arrived at by recording various subjects including a jazz band, a set of jazz traps, etc., and playing them back at original loudness. IMPEDANCE: 16 ohms.

*TRADE-MARK REGISTERED IN U. S. PATENT OFFICE

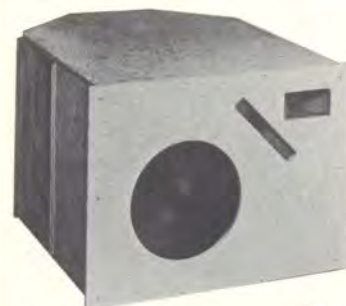


Fig. 17

STYLE U is unfinished functional horn.



STYLE U is unfinished functional horn.

Fig. 20



MODEL T THE SHORTHORN MODEL T may be used to provide full range sound reproduction for television as well as for record players, tape players, and radio. Its dimensions permit placing a table model television set on its top so that the sound and picture originate at the same place in the room.

A "built-in corner" permits it to be used away from a corner, with the sacrifice of part of its bass range.

FREQUENCY RANGE, 30-22,000 cycles, with substantial efficiency from 45 to over 16,000 cycles. Efficiency below 80 cycles is greater than that of MODEL S.

AVAILABLE IN FINISHED OR UNFINISHED MODELS, WITH OR WITHOUT DRIVE SYSTEMS.

STYLES, in light or dark mahogany, or blond prima vera in high quality satin lacquer finish. Also available sanded but unfinished when owner wants to apply special finish.

NO KITS OR DRAWINGS

The MODEL T is not offered in kit form and construction drawings are not available.

OPTIONAL CASTER BASE

Where mobility is desirable, the MODEL T may be supplied, at extra cost, with three-inch rubber-tired casters, concealed behind a skirt of same wood as cabinet.

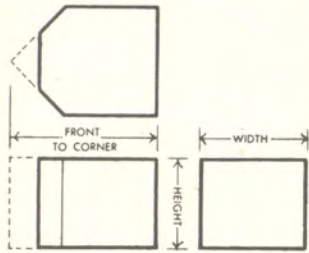


Fig. 18

DIMENSIONS	CABINET MODEL	UTILITY
	FINISHED	MODEL
Height	19½" (23¾"*)	19"
Width	26¾"	25½"
Front to corner	36¾"	35"

*Height with casters and skirt.

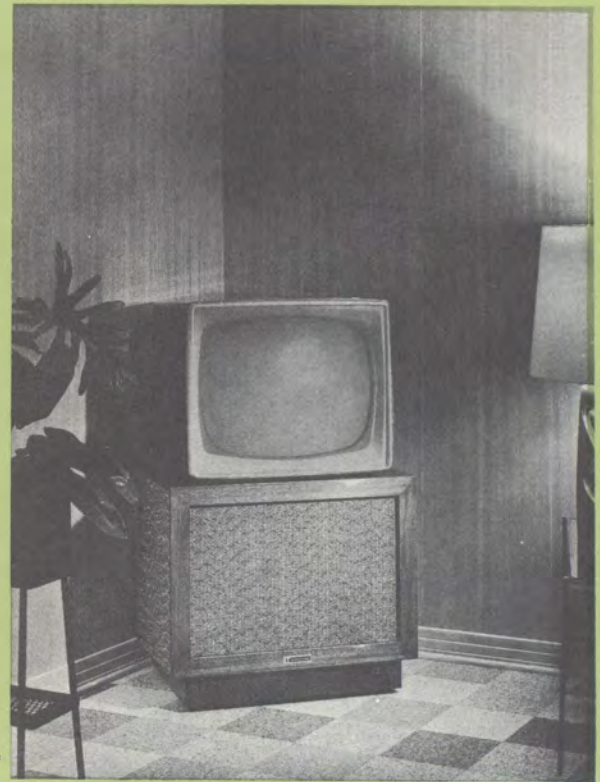


Fig. 19

Finished styles have fine hardwood cabinets with front and side grills of decorator fabric. Illustrated with caster base.



MODEL S Where moderate size is a consideration, the SHORTHORN MODEL S provides full range sound reproduction, yet occupies a small amount of floor area. Its height permits the highly desirable ear-level placement of mid-range and high frequency horns.

FREQUENCY RANGE, 40-22,000 cycles, with substantial efficiency from 60 to over 16,000 cycles. (Response curve down 10 decibels at 49 cycles.)

AVAILABLE IN FINISHED OR UNFINISHED MODELS, WITH OR WITHOUT DRIVE SYSTEM AND AS DO-IT-YOURSELF KITS.

STYLES, in light or dark mahogany, or blond prima vera. Utility models and do-it-yourself kits in unfinished fir with gum exposed parts. Utility model (without cabinet, functional horn only) has front panel and top made of gum plywood, sanded and finished with one coat of clear lacquer sealer.

BASS HORN KIT is available with all wooden parts pre-cut for easy assembly with only the simplest tools. An easy-to-follow instruction sheet is included. While no drive system is included in the kit, either the K-ORTHO-15 or K-ORTHO-12 3-way drive system is recommended for optimum sound reproduction. However, any good drive system will give notably improved performance when mounted in assembled SHORTHORN kit.

NO DRAWINGS

Construction drawings of the MODEL S are not available.

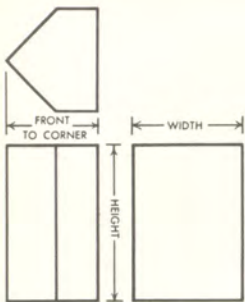


Fig. 21

DIMENSIONS	CABINET MODEL	UTILITY HORN
	FINISHED	OR ASSEMBLED HORN KIT
Height	37"	36¾"
Width	25½"	24"
Front to corner	23¼"	22"

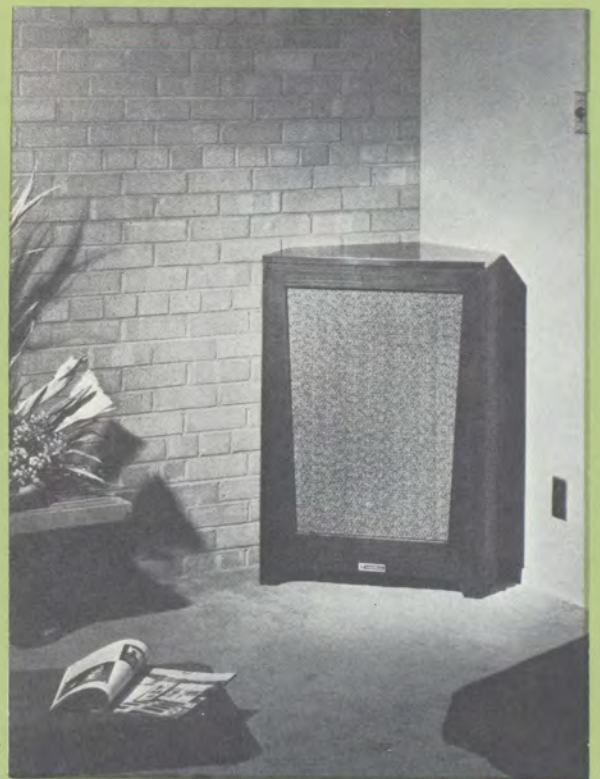


Fig. 22

Finished styles have fine hardwood cabinets with front and side grills of decorator fabric.

*TRADE-MARK

K-OR
THO
 *
 DRIVE

KLIPSCH K-ORTHO

3-WAY Drive System

THE K-ORTHO 3-WAY DRIVE SYSTEM is used in the SHORTHORN speaker system, and is recommended and offered separately for those desiring to improve earlier SHORTHORN, REBEL, other corner-horn back-loaded systems, and even built-in speakers. This system has been evolved after many years of study, measurement and listening.

Three separate speakers, or drive units, are employed for bass, mid-range and upper treble tones. An electrical balancing network feeds into each speaker only those frequencies which it can reproduce best. This results in clear, well defined sound reproduction throughout the entire range of tones which the ear can hear.

The combination of drive units has been selected by Paul W. Klipsch from among principal foreign and domestic makes as the result of thorough laboratory and listening tests. In listening tests, accepted as a criterion, a reproduced recording is compared with a live performance of the recording artist to determine how closely reproduced sound approaches identity with original sound.

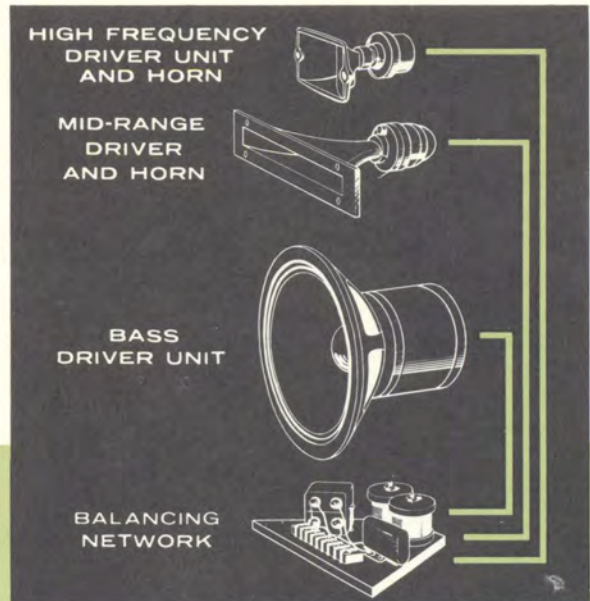


Fig. 23

BALANCING NETWORK

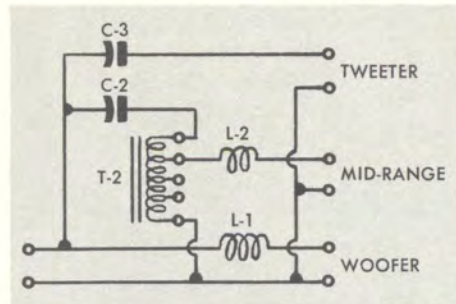


Fig. 24

The new balancing network shown in Fig. 24 is used in both KLIPSCHORN and SHORTHORN systems; different element values are used for the different crossover frequencies, but the circuit is the same.

KLIPSCHORN crossover frequencies are 500 and 5,000; SHORTHORN 1,000 and 5,000.

The bass driver is either a Stephens or Electro-Voice fifteen-inch or twelve-inch cone. The mid-range driver is the University SAHF and the high frequency unit is a University 4401. Effective range is from below 40 cycles to over 22,000 cycles, with substantial efficiency from 60 to over 16,000 cycles.



*TRADE-MARK



KLIPSCHE

CORNER HORN LOUDSPEAKER SYSTEMS



*. . . The mark of loudspeaker systems
fabricated and tested under the
personal supervision of their
designer, PAUL W. KLIPSCH.*

KLIPSCH AND ASSOCIATES
HOPE, ARKANSAS