

CATALOGUE NUMBER FOUR

ST. LOUIS LIGHTNING ROD COMPANY

Manufacturers of
Quality LIGHT-
NING RODS ▲▲
FIXTURES and
ORNAMENTS

S. D. KRETZER - - - - - *President and Treasurer*
B. A. KRETZER - - - - - *Vice-President*
J. F. KRETZER - - - - - *Secretary*

ESTABLISHED 1866 • INCORPORATED 1902

THE LARGEST LIGHTNING ROD
FACTORY IN THE WORLD

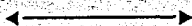
HEADQUARTERS FOR ALL
LIGHTNING ROD SUPPLIES

Office and Factory: DE KALB & TRUDEAU STREETS
ST. LOUIS, MO.

FOREWORD

The St. Louis Lightning Rod Company was established in 1866 and it's steady successful growth is evidence of the foresight of it's founder, the late Mr. H. F. Kretzer, who foresaw the necessity of a source of supply for a system of efficient Lightning Protection that would be furnished to the trade on a basis that would enable the individual dealer to profitably carry on a Lightning Rod business.

To manufacture a Lightning Rod system that furnishes real protection to the Property Owner, and one that the dealer can feel safe in recommending was the founder's motto, and this same idea has been followed by the St. Louis Lightning Rod Company during all of it's history.

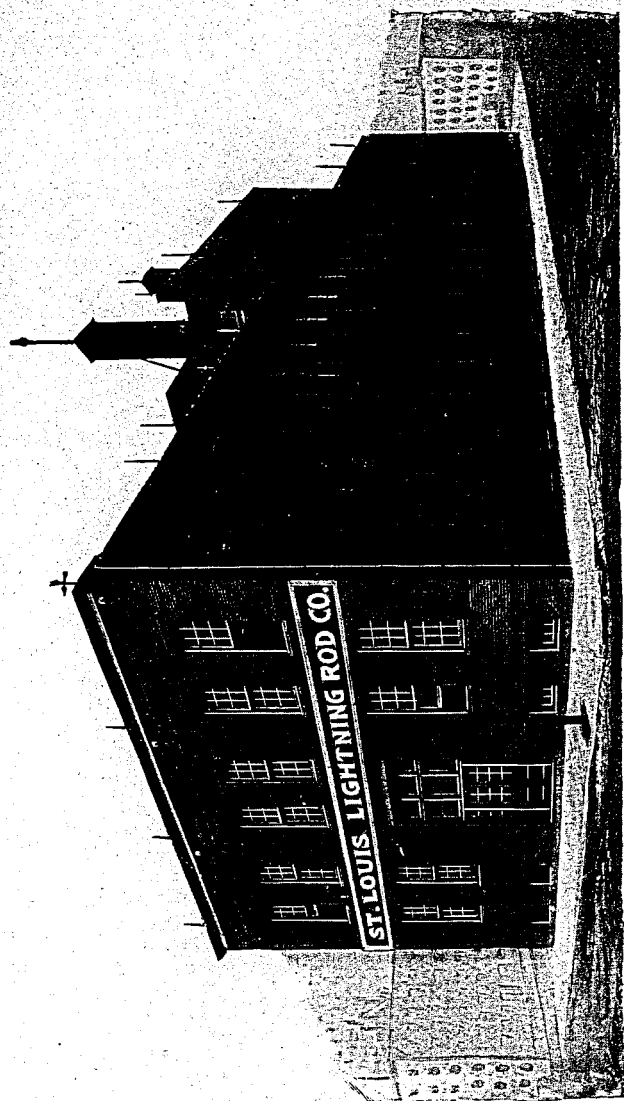


NOTICE

This catalogue has been distributed to all the Lightning Rod Trade; to every Manufacturer, Wholesale Dealer and Jobber of Lightning Rods. In corresponding with anyone in reference to any article shown in this catalogue, DO NOT TEAR out the page illustrating same, but simply refer in your letter to "ST. LOUIS LIGHTNING ROD CO. CATALOGUE No. 4" and state the page and number of the article concerning which you desire information, and your inquiry will be understood whether you address us or send it to any other wholesale Lightning Rod concern.

ST. LOUIS LIGHTNING ROD CO.

THE LARGEST LIGHTNING ROD FACTORY IN THE WORLD



Office and Factory: DE KALB and TRUDEAU STREETS - ST. LOUIS, MO.

To the Lightning Rod Trade

IN issuing this enlarged catalogue, we aim by appropriate illustrations and descriptions to convey to the Trade as correct an idea as possible of our line of goods. Our experience as manufacturers since 1866 and our extensive acquaintance with the Lightning Rod Trade and its requirements, has well qualified us to know what the Trade needs and how to supply its demands.

IMPROVEMENTS in the Design, Style and Quality of our products from time to time make necessary the publication of new and enlarged catalogues in order to keep the Lightning Rod Industry fully informed of and equipped with the most up-to-date devices that skill and science can supply.

We manufacture practically everything used for protection against lightning, but as a distinguishing mark of superior quality and improvement, we have designated our best goods with our trade mark

"KRETZER" BRAND

Our factory, covering an entire city block, is the largest and the most complete, modern and up-to-date Lightning Rod manufacturing plant in the world. Our facilities will enable us to produce as much Lightning Rod as all other factories combined. We make in our own factory, under our own supervision our entire line of goods, thus enabling us to keep our goods up to their present high standard of perfection. We invite your critical comparison of our goods with those of our competitors, fully confident that such comparison will show our goods to be the best and most perfect on the market.

When ordering, refer to page 104.

**WE SELL OUR GOODS ONLY TO THE LEGITIMATE
LIGHTNING ROD TRADE**

OUR ANNEALED ELECTRIC STAR STEEL



THE body of our Star Galvanized, Copper Coated, Tri-Metallic and Bi-Metallic Copper Covered Rods is made of double refined, rerolled, annealed electric steel. It is the softest, toughest and purest steel that has ever been rolled into Star Shape for Lightning Rods. It is our own special mixture, formulated for us by one of the most expert analytical steel chemists in the United States. It is far superior as a conductor of electricity to the common copper or iron, or the ordinary steel that is used in so many of the Rods now on the market.

The perfection and purity of our steel is such that it is better than pure copper in its use as a Lightning Rod for general purposes. We guarantee that this steel will bend easier and better than any other Star steel made, and that it will not melt like copper under a severe lightning strain when properly installed. The Star Shape is used because it offers not only a large conducting surface but in addition the mass of metal so necessary in a lightning rod system.

COUPLINGS ON OUR STAR RODS

ALL of the Couplings on our Star Rods are made of pure copper-bronze. The mechanical work and finish on our couplings is perfect. They are all milled and finished accurately to the hundredth part of an inch by special automatic graduated machinery. Each coupling fits into another perfectly. The inner surface of the coupling is roughened and swelled, and in our "Shurhold" excess metal is provided on the outer surface (see description on page 7) and being compressed onto the Rod by powerful and accurate machinery, every coupling is perfectly true, straight and solid. All couplings have a $\frac{5}{8}$ inch thread with 14 threads to the inch, and fit other couplings used on other makes of star rods. Through the use of these couplings every foot of Star Rod can be utilized and there is no waste. For appliances to swedge couplings on cut Star Rod, see Nos. 184 and 184A.

We claim and are prepared to substantiate that our couplings are the most perfect, best and strongest that are used upon any Rod.

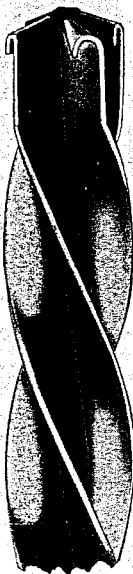
Some manufacturers of copper cable rod frequently advance the claim that a Star Rod is liable to become disconnected at the joints. This statement is NOT true of our Lightning Rods. Our couplings will NOT become disconnected, and when the rod is coupled it offers a perfect, unbroken conducting surface.

THE "SHURHOLD" COUPLING

U. S. PATENT, AUG. 19, 1919
TRADE MARK REGISTERED U. S. PAT. OFF.

Hooks
for
Coupling

Contact Point



A NEW COUPLING DEVICE FOR KRETZER BRAND STAR STEEL RODS

This cut shows a section of Star Steel after the ends of the flanges have been formed preparatory to receiving the coupling. Note extra contact point on steel section. This directly contacts with the metal wall of the coupling. After the Star Section has been prepared, the coupling is put on and crushed on to the rod by special automatic machinery in such a way so that at the time of crushing the excess metal provided in the coupling is, by extra pressure being exerted on the outside rivet heads, forced up into the recess formed by the hooks on the flanged section. A dual pressure is exerted which firmly imbeds the steel into the metal of the coupling.

This cut illustrates a cross-sectional view of the KRETZER "SHURHOLD" COUPLING. The coupling, after being attached to the rod, was ground down to expose the steel. You will observe that by this method each flange of the Star Steel Section is firmly hooked into the actual metal of the coupling in such a manner as to make it absolutely impossible for the coupling to become disconnected or pulled from the rod.

The standard Kretzer Coupling, as manufactured by us for many years, has always been recognized as the best on the market. Other styles of couplings for which some virtue has been claimed, owing to certain supposed holding devices other than friction, never have been in a class with our standard couplings.



PURITY OF METALS

THERE is no line of manufacture in which Quality is of so much importance as in the LIGHTNING ROD. A LIGHTNING ROD is expected to do its work under extraordinary conditions; its failure at a critical time would mean a severe loss. It may at any time be called upon to stand the severest strain to which any article of manufacture can be put. It must furthermore stand the test of time as there is more expected of it than is expected of any other article used on or in a building. It is, therefore, of vital importance that all of the materials used in the construction of LIGHTNING RODS be of the very highest grade and that they be perfectly manufactured in every respect.

The STAR STEEL used in all of our section rods is the very purest steel rolled. (See page 5.)

The COPPER WIRE used in all of our cable rods is guaranteed to be of the very purest grade drawn.

Our Copper Tube Rod is guaranteed to be made of pure copper.


Each and every part of the Trimmings or Ornaments that are furnished with our goods are made from the purest materials that can be used for the purpose for which the article is intended.

The MECHANICAL WORK on our goods is the most perfect that the combination of the finest graduated machinery and the highest skilled labor can produce.

In finishing our Ornaments and all other goods, special care is taken to insure our customers the very handsomest material that it is possible to place on the market.

COPPER-COATED STAR STEEL ROD

No. 1— $\frac{3}{4}$ -INCH SIZE



To protect the established reputation of our Copper Coated Rod against inferior copper plated, copperized, or the so-called coated rods, we have secured a registered Trade-Mark on the name "Copper-Coated" as applied to Lightning Rods.

The Copper Coating we place upon this Rod is by a secret process—*not patented*. It is the result of practical and scientific experiment since 1866. We have in our factory one of the most complete and largest Copper Coating plants in the United States. In Copper Coating our Rods, we practically amalgamate the Copper and Steel, covering the Steel with a seamless coating of chemically pure copper. We prepare our Copper so that it covers the steel smoothly and has a bright polished lustre. The Rod will retain this bright lustre a long time after it is exposed to the weather.

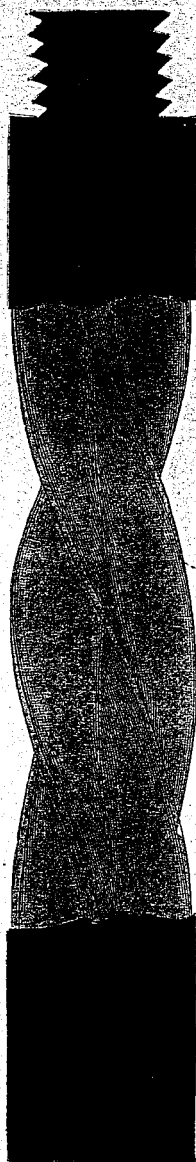
GALVANIZED STAR STEEL ROD

FOR STAR STEEL AND COUPLINGS USED
ON THIS ROD, SEE PAGES 6, 7 AND 8

No. 2— $\frac{3}{4}$ -INCH SIZE

In galvanizing this Rod, we use strictly pure American spelter, the best and purest spelter in the world. We mix with the spelter a certain percent of aluminum in conformity with our special formula. This mixture produces a bright and smooth surface. The aluminum greatly increases the conductivity of the coating. Our process of galvanizing preserves the pliability of the steel and guarantees the durability.

The trade will find this to be the most perfect Star Galvanized Rod that has ever been produced. It has low residual magnetism; high permeability; it takes hold and lets go of its magnetism more readily than any kindred material.



TRI-METALLIC COPPER COVERED STAR STEEL ROD

THIS new Lightning Rod is the best all around Rod on the market today. It is perfect, both theoretically and practically; it possesses selling points which are points of merit and which make it an ideal rod with which to meet and overcome any class of competition. A study of this rod will show that it possesses all of the talking points of the cable, tube and of the Star Section rods. It is a **Universal** Lightning Rod, and in it are combined the good qualities of all other rods with none of their defects.

This rod must not be compared in any way with the inferior Copper-Covered Rods which have been on the market for years. This is not merely a Galvanized Center Copper Covered Rod. Our new TRI-METALLIC Rod will **not rust or wear out**; the special coating on the steel makes a protective surface of very high conductivity, which will not scale or crack. This is not merely a dipped coating, but it is a coating placed upon the steel by a special process by which the metal adheres so closely to the steel as to be absolutely inseparable. This coating penetrates into the invisible particles of the steel, and it might well be said to take root into the steel itself. This process is a foreign patented process which is now being used by many European governments for the protection of iron and steel against corrosion.

The sheet Copper Covering which we place on this rod is the heaviest and the best that is used on any Lightning Rod. We are using a special grade of highly polished Copper, which makes this rod very handsome. Furthermore, if our method of covering is compared with that of others it will be noted that the covering on our rod is laid down close to the steel, and the lap is so constructed with **Double Lock Seam** as to be practically water-tight.

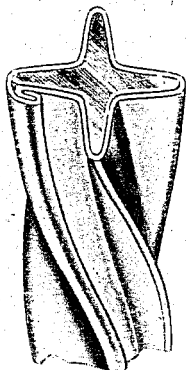
The couplings used on this rod and the Star Steel used in it are both of the same high standard which we have always furnished.

TRI-METALLIC COPPER COVERED STAR STEEL ROD

No. 3— $\frac{3}{4}$ -INCH SIZE
SPECIAL CENTER
Double Lock Seam

For complete description of these Rods, see pages 6, 7, 8, 9 and 11.

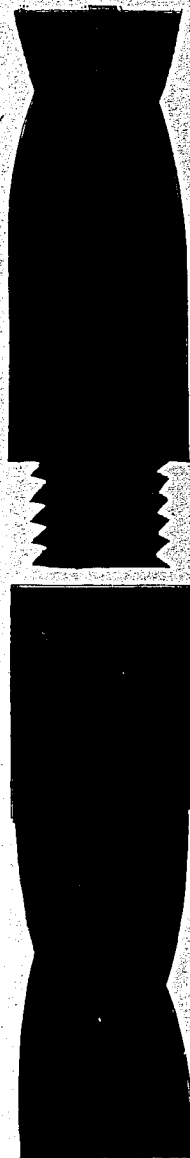
No. 3D-Bi-Metallic Copper Covered Star Steel Rod. The construction of this Rod is the same as that of the Tri-Metallic with the exception of the protective coating on the steel which is the same as on our Copper Coated Rod.



Illustrating Double
Lock Seam

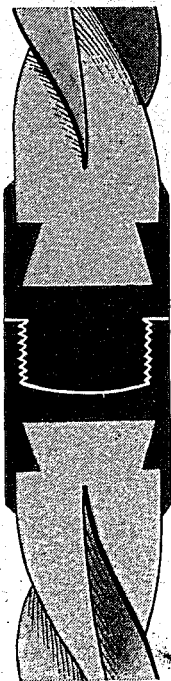


Tri-Metallic



STEEL RODS WITH DOVE-TAIL COUPLINGS

ANY DEALER WHO DESIRES ROD FURNISHED WITH
THE SO-CALLED DOVE-TAIL COUPLING CAN
HAVE IT SO EQUIPPED



No. 4

Our Couplings and Our Method of Attachment to the Rod (the
Notching of the Steel, etc.) are Guaranteed to Produce
a Star Rod Coupling that is Superior to Any-
thing of this Particular Type Now on
the Market.

COPPER TUBE ROD


Guaranteed Pure

No. 5— $\frac{5}{8}$ -INCH SIZE

The method of coupling this Rod makes it a continuous pure Copper Rod and the finest Rod of its kind on the market. It offers an unbroken Copper surface both inside and outside. In erecting this Rod where difficult bends are to be made the Rod can be shaped and formed on the ground to fit the building and then coupled together. This cannot be done with Tube Rods having screw couplings. This Rod has a swaged or reduced end joint.



Connected



Disconnected

SEVEN STRAND GALVANIZED IRON WIRE CABLE ROD

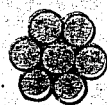
No. 6 of this Rod is $\frac{5}{16}$ -inch size.

No. 6A " " " " $\frac{3}{8}$ " "

No. 6B " " " " $\frac{7}{16}$ " "

No. 6C " " " " $\frac{1}{2}$ " "

The Cable Rod shown here is a stiff Rod and fills the demand where such a cable is desired. It is shipped in coils of any desired length, preferably in lengths of 500 feet.



SOLID AND BRAIDED PURE COPPER CABLE RODS

No. 7 of this Rod is $\frac{3}{8}$ -inch size.

No. 7A " " " " $\frac{7}{16}$ " "

No. 7D " " " " $\frac{1}{2}$ " "

The Rod shown on left is made of six strands of four wires each, twisted around a center strand containing six wires, thus combining thirty copper wires into this cable rod.

The wire used is guaranteed to be pure soft copper and the method of twisting gives this Rod a very large conducting surface. This Rod is reeled on spools in continuous length of 500 feet and 1000 feet.

Cable of this type can be furnished in any size desired and containing any number of wires (up to 56) of any gauge.

No. 8 of this Rod is $\frac{5}{16}$ -inch size.

No. 8A " " " " $\frac{3}{8}$ " "

No. 8B " " " " $\frac{7}{8}$ " "

No. 8C " " " " $\frac{1}{2}$ " "

We are prepared to make larger sizes to order.

The Rod shown on right is made of seven strands of four wires to the strand, thus combining twenty-eight wires into a solid tight twisted copper cable rod. The wire used is guaranteed to be pure soft copper. This Rod is reeled on spools in continuous length of 500 feet. It is one of the best styles of Cable Rod manufactured.

THIRTY-ONE WIRE SPIRAL CENTER PURE COPPER CABLE ROD

No. 9 of this Rod is $\frac{3}{8}$ -inch size.

No. 9A of this Rod is $\frac{7}{16}$ -inch size.

No. 9B of this Rod is $\frac{1}{2}$ -inch size.


This Cable is composed of thirty-one **Guaranteed Pure** hard drawn Copper Wires. This Cable is the handsomest cable of this style on the market, possesses more value than any similar Cable made and gives perfection satisfaction. It not only possesses all of the good qualities of the Cable Rod, but owing to the style of its manufacture and the fact that it possesses both inside and outside surface, it also combines all of the arguments that can be advanced in favor of the Tube Rod.

This Rod is reeled on spools in continuous lengths of 500 and 1,000 feet.



FIFTY-SIX WIRE SPECIAL PURE COPPER CABLE ROD

No. 10 of this rod is $\frac{9}{16}$ -inch size.



The Cable shown on left is composed of fifty-six pure, soft copper wires, being made of six strands of eight wires each, twisted around a center strand containing eight wires, thus making 56 wires in all.


This cable contains more wires than any similar rod made, and has a larger outside conducting surface than any other Cable on the market. It can be made in any size, depending upon the gauge of wire used. This Cable is reeled on spools in continuous lengths of 500 and 1000 feet.

SPECIAL: We are equipped to manufacture and furnish copper cables containing any number of wires of any gauge.

Eight Wire Miniature Cable

For connecting or grounding metal work. We carry this in 2 styles—one for use with Star Rod and the other for use with Copper Cable.

56 Individual
Wires



Eight Wire
Miniature Cable.

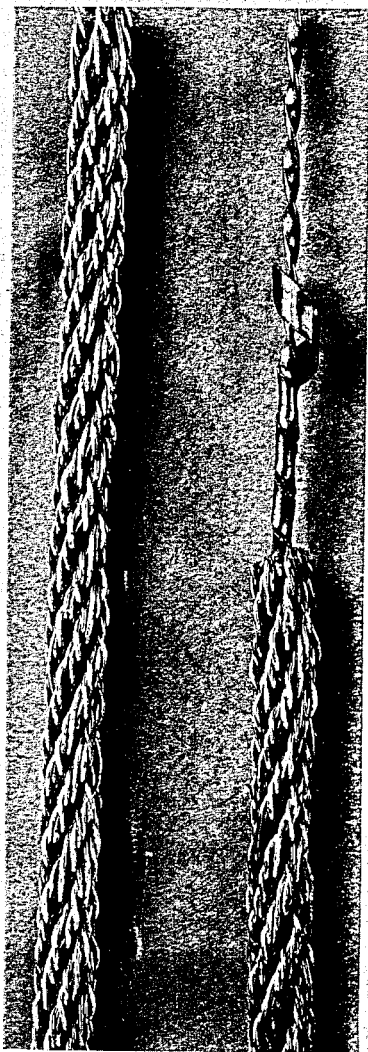
ST. LOUIS LIGHTNING ROD CO.

PREMIER PURE COPPER CABLE LIGHTNING ROD

MAXIMUM CONDUCTING SURFACE—LARGE
CARRYING CAPACITY

The "PREMIER" Copper Cable Rod is perfectly manufactured in every detail. The heavy copper ribbon is of purest copper, formed so as to insure the maximum surface for the core. Over this is wrapped a covering of copper strip and over this strong center of high conductivity are laid thirty heavy copper wires in a manner insuring the greatest possible wire surface. It is the most rigid cable rod made and will not sag nor get out of shape.

Illustrating Heavy
wrapped—Ribbon
Copper Core.



BAYONET POINTS REGULAR

No. 12. Electro Nickel Point, $\frac{5}{8}$ -inch hole, for Star Rods.

No. 12B. Electro Nickel Point, for $\frac{3}{8}$ -inch Tubular Cable Brace.

No. 12F. Electro Nickel Point, for $\frac{1}{2}$ -inch Tubular Cable Brace.

No. 12C. Electro Gold Point, $\frac{5}{8}$ -inch hole, for Star Rods.

No. 12E. Electro Gold Point, for $\frac{3}{8}$ -inch Tubular Cable Brace.

No. 12G. Electro Gold Point, for $\frac{1}{2}$ -inch Tubular Cable Brace.

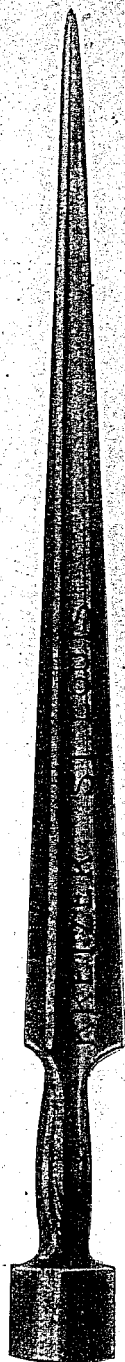
Our Nickel Points are the most handsome, best and most durable Points of this design on the market. They will retain their bright finish longer when exposed to the weather, than any other finish usually placed on this style of Point. No. 12, No. 12-B and No. 12-F are the most popular Points of this design.

Our Electro Gold Points are all finished with 24-karat Gold.

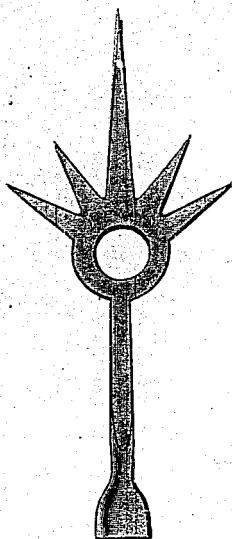
No. 12 SPECIAL "KRETZER" BRAND BAYONET POINT $10\frac{1}{2}$ INCHES IN LENGTH

Heaviest and most durable point of this type used for lightning protection purposes. Furnished in either Electro Nickel finish or Electro Gold finish on special point metal body with $\frac{5}{8}$ -inch hole for Star Rods only.

The metal used in manufacturing "Kretzer" Brand Points is formulated especially for Point purposes, and has both extremely high conductivity and toughness, and these features combined with it's heavy and highly polished finish make it the ideal Lightning Rod Point.



GOLD LEAF AND ALUMINUM COPPER CROWN POINTS



No. 11. Aluminum Point $\frac{5}{8}$ -inch hole, for Star Rods.

No. 11-I. Aluminum Point for Tubular Brace, $\frac{3}{8}$ -inch size.

No. 11-L. Aluminum Point for Tubular Brace, $\frac{1}{2}$ -inch size.

No. 11-C. Shank Aluminum Point for Copper Tube Rod and Copper Tube Uprights for Cable Rod.

Our Aluminum Points are made of 98 per cent pure Aluminum and by a new process that produces a solid tough metal of very high conductivity and great tensile strength.

No. 11-B. Gold Leaf Copper Point, $\frac{5}{8}$ -inch hole, for Star Rods.

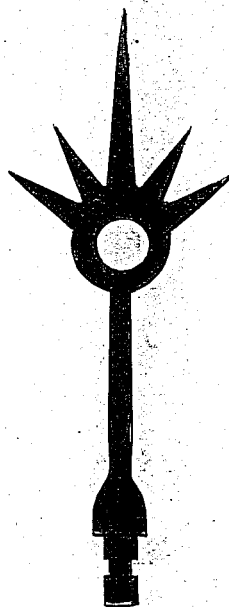
No. 11-J. Gold Leaf Copper Point, for Tubular Brace, $\frac{3}{8}$ -inch size.

No. 11-K. Gold Leaf Copper Point, for Tubular Brace, $\frac{1}{2}$ -inch size.

No. 11-G. Gold Leaf Copper Point, $\frac{5}{8}$ -inch Shank to fit copper tube rod and copper tube uprights for Cable Rod.

Our Copper Points are made of a special metal called Point Metal, being almost pure copper and of high conductivity.

These points are all covered with pure Gold Leaf, which gives them a very handsome and durable finish, and are the most popular points of this style.



Shank fits $\frac{5}{8}$ -inch Tube

POINTS FOR CABLE AND TUBE RODS

SHELL

These Points are made of pure copper, and nickel plated, and are the heaviest points of this style made.

No. 13. Shell Point for $\frac{5}{16}$ -inch Cable Rod.

No. 13A. Shell Point for $\frac{3}{8}$ -inch Cable Rod.

No. 13B. Shell Point for $\frac{7}{16}$ -inch Cable Rod.

No. 13C. Shell Point for $\frac{1}{2}$ -inch Cable Rod.

No. 13D. Shell Point for $\frac{9}{16}$ -inch Tube Rod.

No. 13E. Shell Point for $\frac{5}{8}$ -inch Tube Rod.

No. 13E is the standard point used for Copper Tube Rod and for Copper Tube Point Rods for Cable.

BAYONET

No. 14. Electro Nickel Copper Point with Shank to fit $\frac{5}{8}$ -inch tube.



Shell

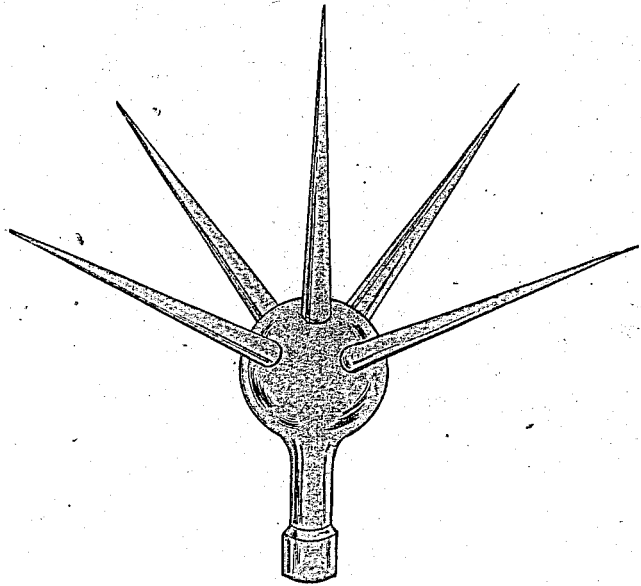


Bayonet

THISTLE POINT

Pat. Feb. 13, 1912.

- No. 15. Electro Nickel Point, $\frac{5}{8}$ -inch hole, for Star Rods.
- No. 15A. Electro Nickel Point, for Tubular Cable Brace,
 $\frac{3}{8}$ -inch hole.
- No. 15B. Electro Nickel Point, for Tubular Cable Brace,
 $\frac{1}{2}$ -inch hole.



This Copper Point is by far the finest Point that has ever been placed on the Lightning Rod market. It is heavy and massive. It shows its value at sight. This is the point which should be used exclusively whenever a fine building is to be rodded. One of these points used on the most prominent point rod will greatly improve both the value and the looks of any job of work.

SPECIAL POINTS

ROUND POINT

- No. 16. Electro Nickel Point, $\frac{5}{8}$ -inch hole, for Star Rods.
- No. 16A. Electro Nickel Point, for $\frac{3}{8}$ -inch Tubular Cable Brace.
- No. 16B. Electro Nickel Point, for $\frac{1}{2}$ -inch Tubular Cable Brace.

This Copper Point is a very handsome and a very heavy point. It is twelve inches long and can be used to good advantage where an extra high quality point of this style is desired.

MAGNETIC GROUND POINT

- No. 18. To fit $\frac{3}{4}$ -inch Star Rods, without connector.
- No. 18A. To fit Cable Rods, with connector.

These Points are made of Special Magnetic Metal with handsome Copper Finish, and fill a long felt want.

These Points are necessary additions to every system of Lightning Rods, and should be used by every dealer.

The proper grounding of a system of Lightning Rods is the most important feature, and unfortunately it is the one which in many cases is the most neglected. The Lightning Rod derives its **whole power from its earth connection**, and it is for this reason that a Ground Rod should be carried down to permanent moisture.

The use of these points insures a better ground connection.

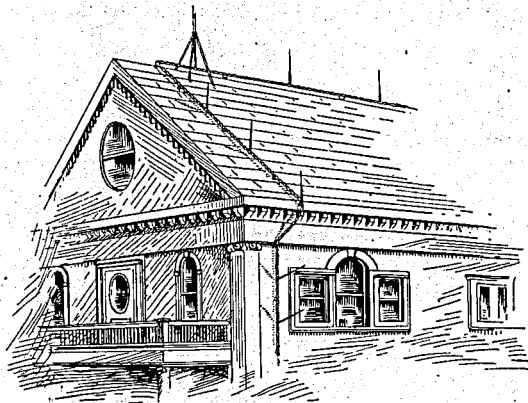


Sharp
Receiving
Point



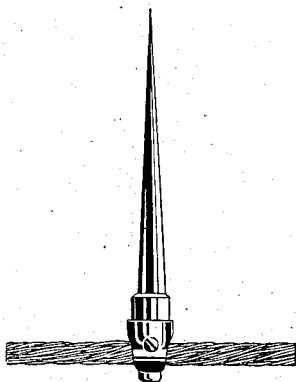
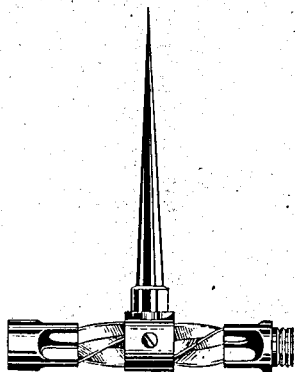
AUXILIARY POINTS

These Points will greatly add to the value of the Lightning Rod. They are to be fastened directly to the Rod itself and should be placed about five feet apart and between the regular uprights.



They are very desirable on barns or houses which have a long sloping roof. They may also be used on the Rod running down the sides or ends of a building.

The Point proper is of solid copper, $5\frac{1}{4}$ inches high and heavily nickel plated. The connector is also of heavy copper and may be closed tightly around the Rod. The set screw will hold the point firmly in whatever position it is originally placed.



These Points make a perfect "Short Top" for use on buildings where an inconspicuous installation is desired.

PEERLESS POINT COMBINATION PLATINUM TIP

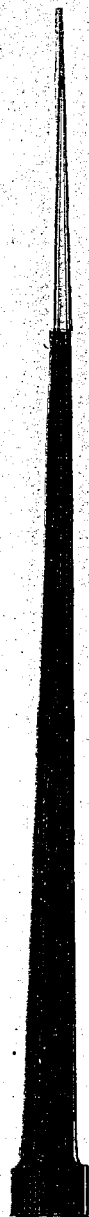
No. 19. To fit Star Rod, $\frac{5}{8}$ -inch hole.

No. 19A. To fit $\frac{3}{8}$ -inch Tubular Cable
Brace.

No. 19B. To fit $\frac{1}{2}$ -inch Tubular Cable
Brace.

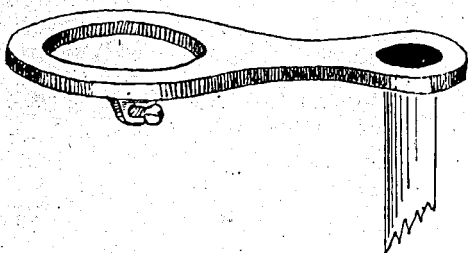
The body of this handsome Point is made of highly polished copper, and is $11\frac{3}{4}$ inches long. The bright polished Combination Platinum Tip is $4\frac{3}{4}$ inches long; giving the complete Point a total length of $16\frac{1}{2}$ inches. This is the longest Point on the market. This Point is intended for use on special work.

Each Point is wrapped and packed in an **individual** box which is **sealed**.



SPECIAL KRETZER BRAND "SHURHOLD" BRACE

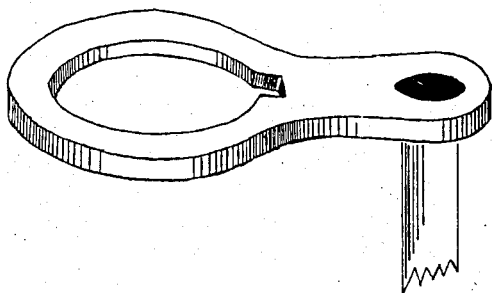
No. 20B. Galvanized Non-Insulation Brace for $\frac{3}{4}$ -inch Rods.



Non-Insulation Holder

No. 20C. Galvanized Insulation Brace.

No. 20E. Galvanized Non-Insulation Brace for $\frac{5}{8}$ -inch Rods.



Insulation Holder

This New Brace, the holders only of which are shown above, is an improvement over our regular open-holder style brace in that it does away with the necessity of closing, which often causes breakage; also has set-screw to hold Rod tight in non-insulation style holders. They are made in the regular size, 40 inches in length and also in the 27 inch length and have two nail holes in each foot. A neat, strong and serviceable brace. They are shipped in crates containing one or two dozen. With each Insulation "Shurhold" Brace we furnish two No. 33 Wart Porcelain Insulators.

TWO HOLDER ROUND STEEL BRACE

No. 20. Black Non-Insulation Brace for
 $\frac{3}{4}$ -inch Rods.

No. 20A. Black Insulation Brace.

No. 20D. Black Non-Insulation Brace for
 $\frac{5}{8}$ -inch Rods.

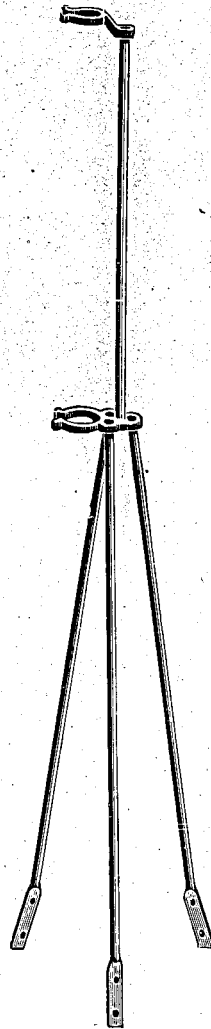
No. 20B. Galvanized Non-Insulation Brace
for $\frac{3}{4}$ -inch Rods.

No. 20C. Galvanized Insulation Brace.

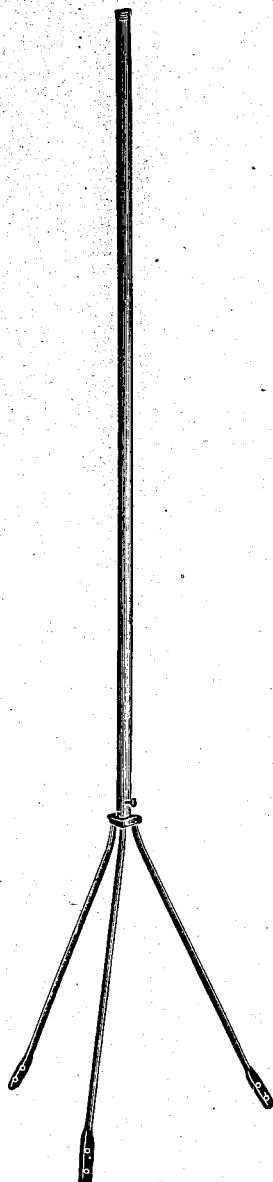
No. 20E. Galvanized Non-Insulation Brace
for $\frac{5}{8}$ -inch Rods.

These Braces are made in both 27 inch and 40 inch lengths and have two nail holes in each foot. A neat, strong and substantial brace. They are shipped in crates containing 1 and 2. dozen, which prevents damage to holders in shipping.

With each Insulation Brace we furnish two No. 31 Porcelain Insulators.



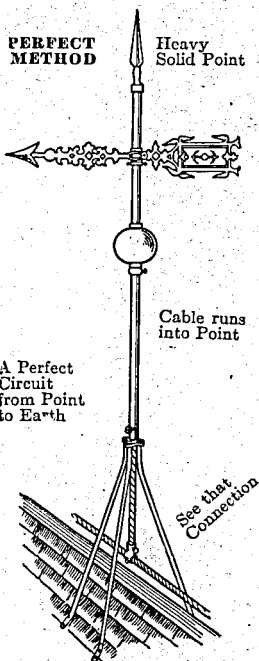
PATENT TUBULAR CABLE BRACE



No. 21F. Galvanized
Brace for $\frac{3}{8}$ -inch
Cable and smaller
sizes.

No. 21G. Galvanized
Brace, for $\frac{7}{16}$ -inch Ca-
ble and larger sizes.

These Braces are put
up in crates con-
taining 1 and 2 dozen.



The stem is made of iron tubing in any length desired up to forty-two inches; the legs are made of round $\frac{5}{16}$ -inch steel and are eighteen inches long. The Cable Rod is inserted into tubular part and carried up to the top of the Brace where it comes into contact with the Point and is firmly held by a special contraction coupling; it is connected to Rod on roof by Connector of Type No. 84. The Cable is fastened securely on the inside of the Brace by a set screw placed above the casting holding the legs. This obviates the necessity of using the light and flimsy Copper Tubing heretofore used for Point sections for Cable Rods. It is a neat, durable and substantial Brace. It will firmly support any of the usual ornaments put on Point Rods. We furnish Ball Rings to support the Ball and have suitable thimbles for arrows and vanes to fit this Brace.

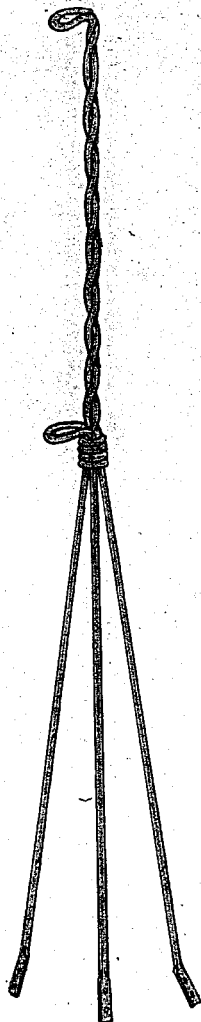
TWISTED BRACE

No. 22. Galvanized Non-Insulation Brace
for $\frac{3}{4}$ -inch Rod.

No. 22A. Galvanized Non-Insulation Brace
for $\frac{5}{8}$ -inch Rod.

These Braces are made of standard height and have two nail holes in each foot. They are neat, strong and substantial. Owing to their construction the trouble of breaking holders is entirely eliminated. There is nothing about this Brace which can be broken. In shipping, they are packed one dozen in a bundle.

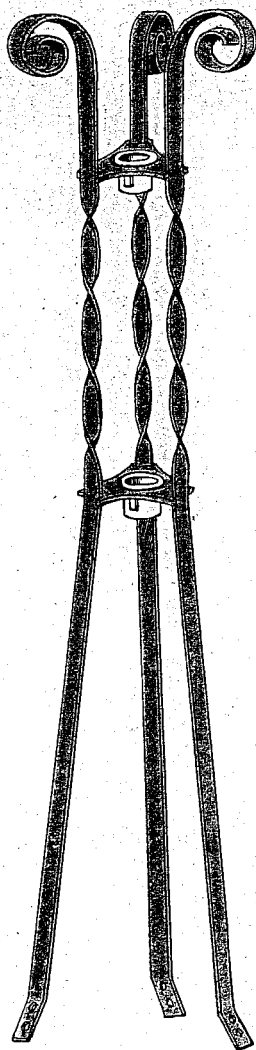
These Braces are made of soft steel of the highest grade, and are **Hot Galvanized** after they are made up. They are therefore, vastly superior to the Braces of this style which are made from common "wiped" galvanized wire.



SCROLL BRACE

A REAL ORNAMENTAL BRACE

Patented February 13, 1912

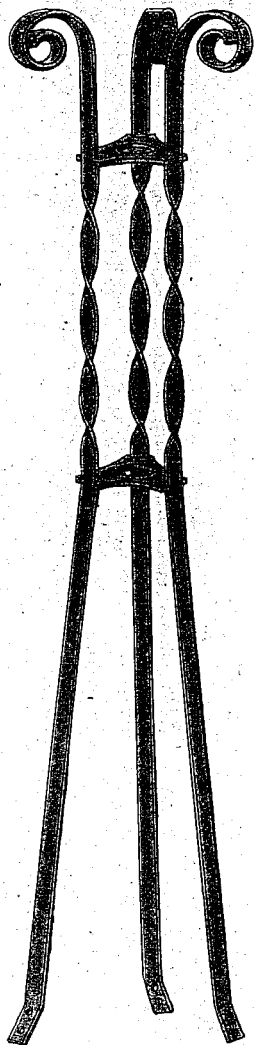


No. 23. Galvanized Non-Insulation Brace for $\frac{3}{4}$ -inch Rod.

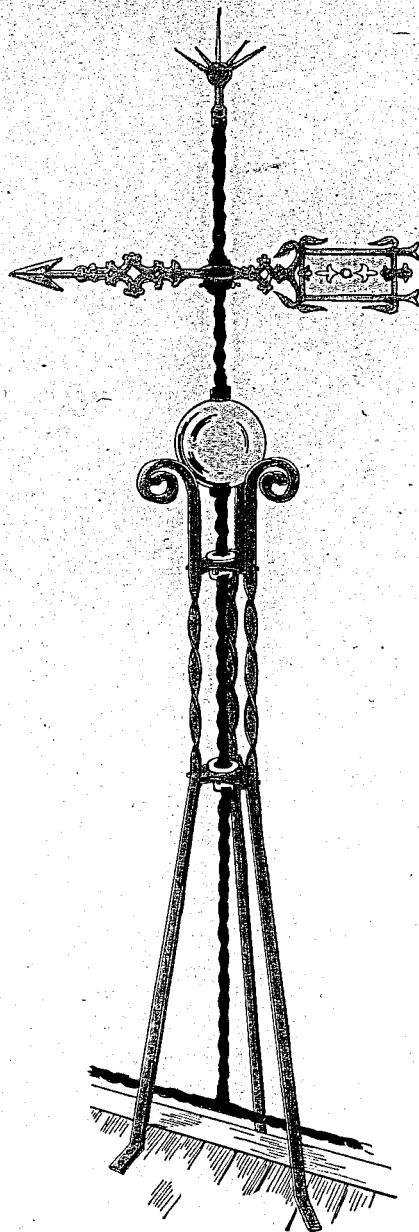
No. 23A. Galvanized Non-Insulation Brace for $\frac{5}{8}$ -inch Rod.

No. 23B. Galvanized Insulation Brace.

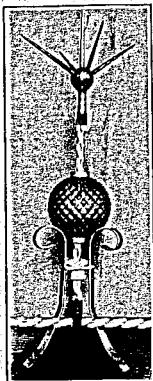
This brace makes a very handsome, ornamental job of work and it must really be tried to be fully appreciated. These braces are of standard 40-inch and 27-inch height, and in shipping they are packed one dozen in a crate. The No. 33 Porcelain Wart Insulator which is shown with the Insulation Scroll Brace is made so as to interlock.



This cut illustrates a very handsome Upright which has met with universal approval and shows what an attractive combination can be made with our "Thistle" Point and Scroll Brace.

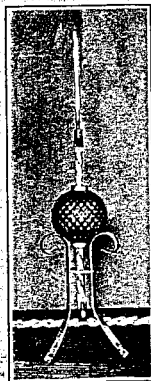


SHORT TOPS



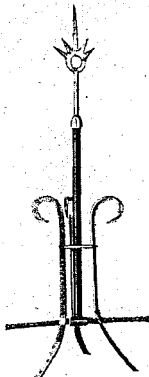
Height, 23 inches

Especially adapted for fine residences. For Star Rod; composed of 12-inch Galvanized Scroll Brace, 15-inch Star Point Rod, Nickel Thistle Point, and Diamond Glass Ball. (Cut on left)



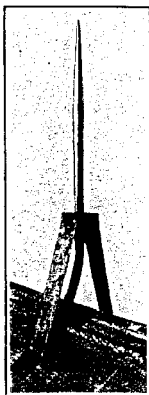
Height, 25 inches

This Top is for Star Rod, and is composed of 12-inch Galvanized Scroll Brace; 15-inch Star Point Rod, Nickel Bayonet Point, and Diamond Glass Ball. (Cut on right)



Height, 23 inches

A Short Top for Copper Cable Rod; composed of 12-inch Galvanized Scroll Brace, 15-inch Copper Tube Point, Rod and Gold Leaf Copper Crown Point.

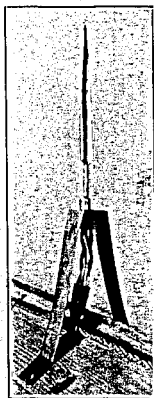


Height, 18 inches

This Pyramid Top is for Copper Cable Rod; composed of an 8-inch Galvanized Iron Brace, a 12-inch Copper Tube Point Rod, and Nickel Shell Point. (Cut on left)

Height, 22 inches

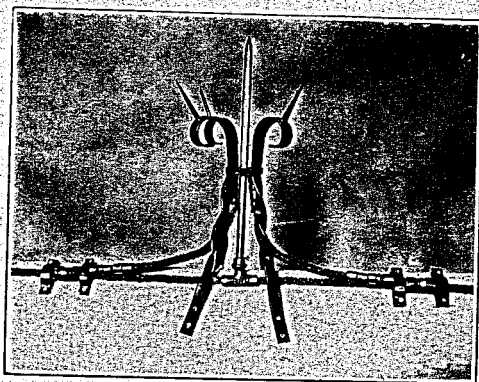
This Pyramid Top is for Star top for cable; composed of an 8-inch Galvanized Iron Brace, a 12-inch Star Point Rod, and Nickel Bayonet Point. (Cut on right)



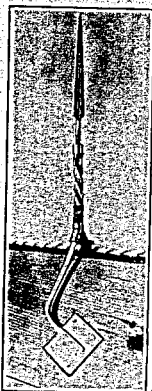
SHORT TOPS



Special Chimney Top



Short "Top Supreme"
Inconspicuous and especially adapted
for fine residences.



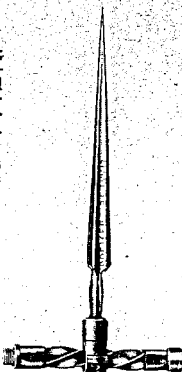
(Cut at left)

Height, 16 inches

Top for Star Rod; composed of a Galvanized Arm and Plate, with Copper Bronze Connector for attaching to rod; 6-inch Star Point Rod, and Nickel Bayonet Point. To attach this to the roof, the arm connecting the plate should be bent whenever necessary.

Height, 10 inches

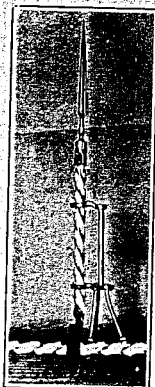
Cut in center shows a method of using our 75a Connector and Nickel Bayonet Point as an Air Terminal.



(Cut at right)

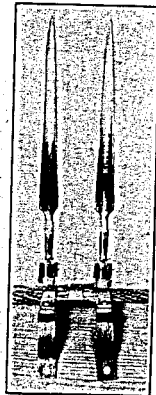
Height, 24 inches

Here's another short Top that looks well on any building, and is composed of a Regular Galvanized 11½-inch Brace, 13½-inch Star Point Rod, No. 75a Connector and Nickel Bayonet Point; for Star Rod.



Height, 11 inches

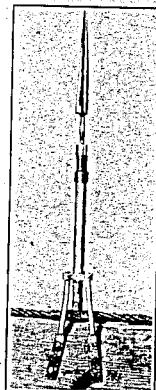
The photo at left shows a novel short Top, composed of 2 "Kretzer" Bayonet Points and a special Connector for Copper Cable Rod. It can be used to advantage on many occasions.

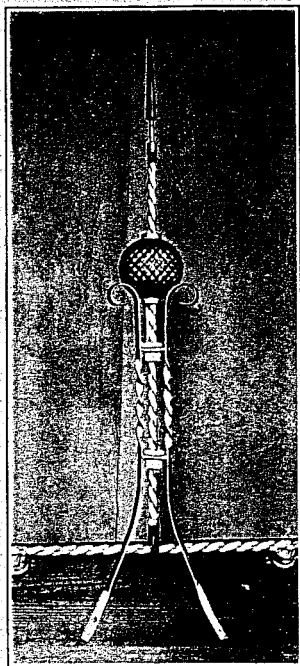


(Cut at right)

Height, 23 inches

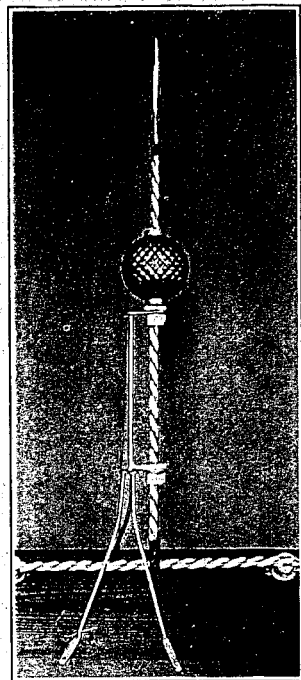
This tubular short Top combines simplicity and strength to its protective value, and is composed of a 11½-inch Galvanized Tubular Brace, Approved Splice Connector, Contraction Coupling and Nickel Bayonet Point; for Copper Cable Rod.





Height, 50 inches

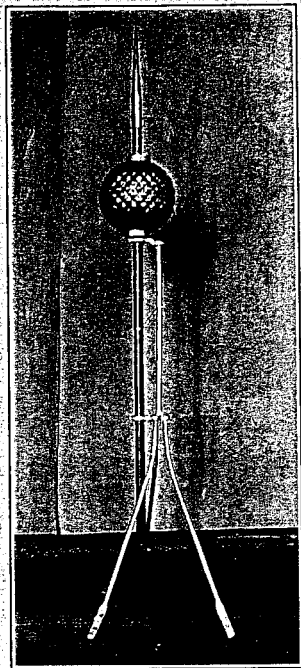
This Top is for $\frac{3}{4}$ -inch Star Rod, and is composed of our 27-inch Galvanized Insulation Shurhold Brace, Nickel Bayonet Point, Galvanized Star Steel Point Rod, and Diamond Glass Ball. We also make this Short Top in the non-insulation style.



Height, 50 inches

Height, 46 inches

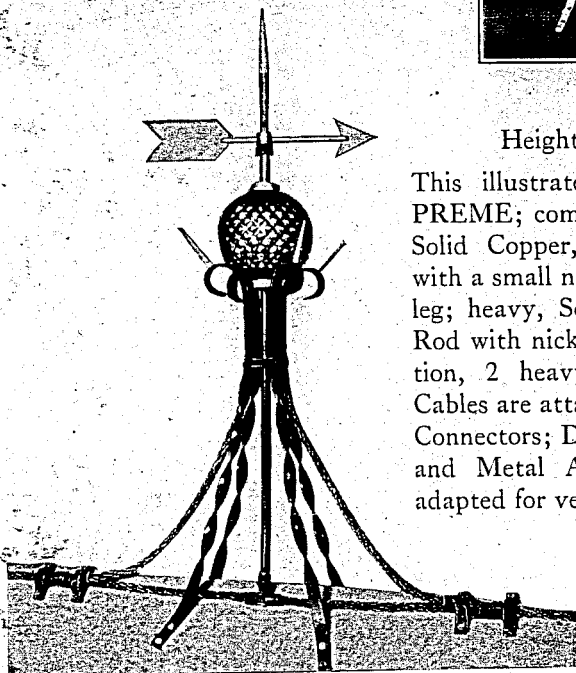
The Top illustrated here is for Copper Cable Rod, and is composed of our 27-inch Regular Galvanized Non-insulation Brace, Nickel Shell Point, Copper Tube Point Rod, and Diamond Glass Ball. Adapted for ordinary barns and dwellings. We also make this short Top in the insulation style.



THE TOP SUPREME

Height, 32 inches

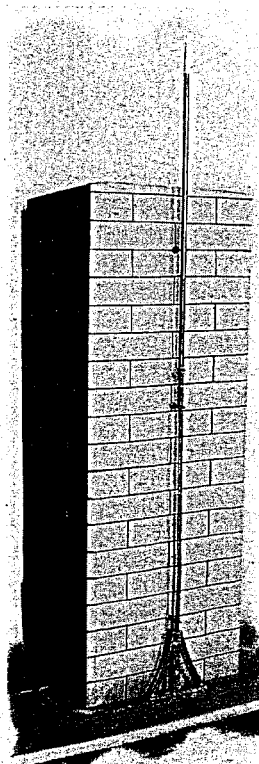
This illustrates our TOP SUPREME; composed of a heavy, Solid Copper, 4-Legged Brace, with a small nickel point on each leg; heavy, Solid Copper Point Rod with nickeled tip. In addition, 2 heavy flexible Copper Cables are attached to Brace and Connectors; Diamond Glass Ball and Metal Arrow. Especially adapted for very fine jobs.



IMPROVED CHIMNEY TOP FOR COPPER CABLE

Fits any Chimney.

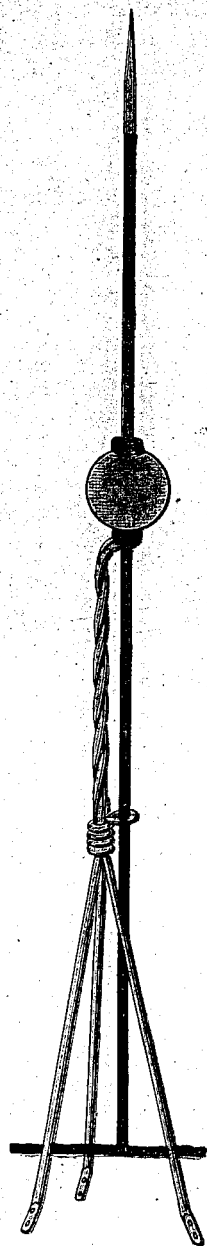
Nothing is left to the imagination, as far as protection is concerned, in the construction of this Chimney Top. You will note that the unique "MULTI-WAY" method of connecting the chimney top to the circuit rod is furnished—the same as used with our "TOP SUPREME."



Note Solid Copper
Point Rod Tip-
ped with Nickel.

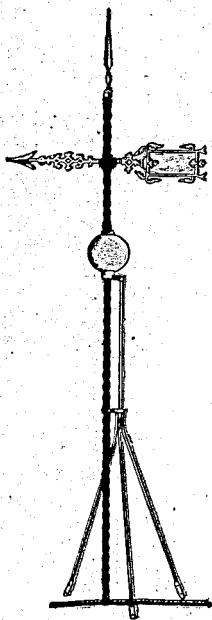
Cable Rod Con-
nected Here.

"Multi-Way" Con-
nection where the
Strain is Greatest.



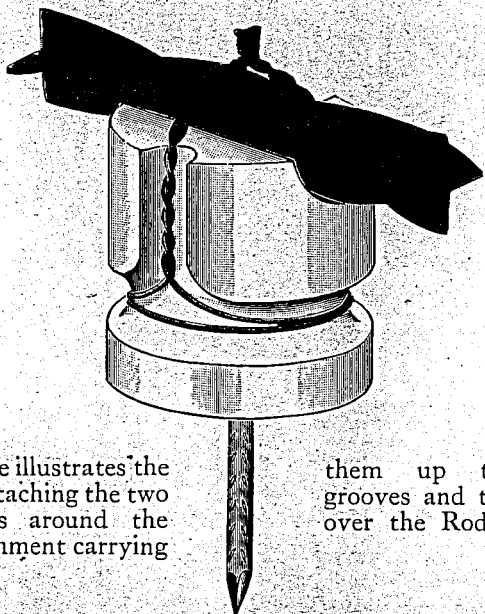
This cut illustrates the copper tube top now in general use, the upright consisting of a 5-foot section of Copper Tube Rod, Nickel Shell Point, Galvanized Twisted Brace, $4\frac{1}{2}$ -inch Silver Glass Ball and Copper T burr.

STAR UPRIGHTS FOR CABLE ROD



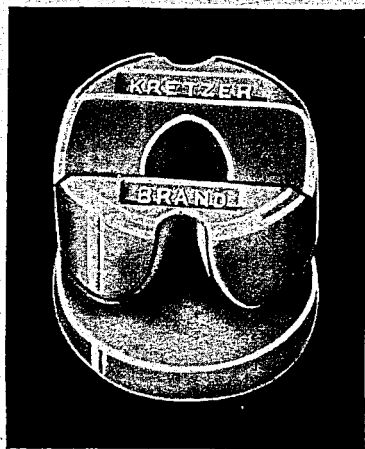
These uprights are proving very popular with the Cable trade who desire to get away from handling the light weight copper tube uprights. They are a big improvement in every way over the copper tube tops. Some of our customers use a section of our $\frac{3}{4}$ -inch Copper Coated Rod and some use a section of our $\frac{3}{4}$ -inch Copper Covered Rod in place of the light piece of copper tubing. We have a special connector, our No. 92, which connects the Star Section to the cable. With this system we furnish a heavy solid brace and a first-class heavy solid point is used. This makes a far more perfect upright than the tube and in addition makes a very high grade seller.

This system possesses a strong selling and talking point of merit on each individual part of the upright. The Star Rod in the first place is a far better conductor and a better Lightning Rod in every way than the copper tube. In addition to this the brace which is furnished is a heavy, strong brace and greatly strengthens the upright. The connector is heavy and solid and of equal conductivity with the upright, making a far better connection than the light inferior connections which are used where the section tube serves as the upright. Last, but not least, with this system a good point can be furnished. Either our Bayonet, Crown, Round or Thistle Points will fit these uprights. The point itself is one of the most important features of the Lightning Rod and with the copper tube uprights it is impossible to use a point of sufficient capacity to properly do the work. Whereas, with the Star Uprights, the very finest grade of points can be used. Furnished in either $3\frac{1}{2}$ - or 5-ft. lengths with Brace to match.



The above illustrates the method of attaching the two copper wires around the No. 30 attachment carrying

them up through the grooves and twisting them over the Rod.

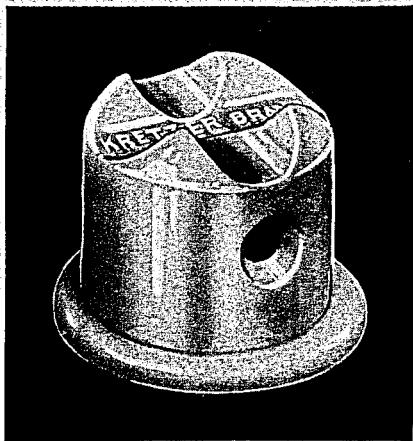


No. 30. Patent Universal Porcelain Attachment. For all sizes and kinds of Rods.

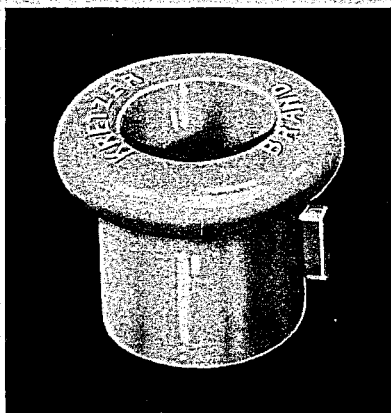


No. 31. Double Flange Porcelain Attachment.

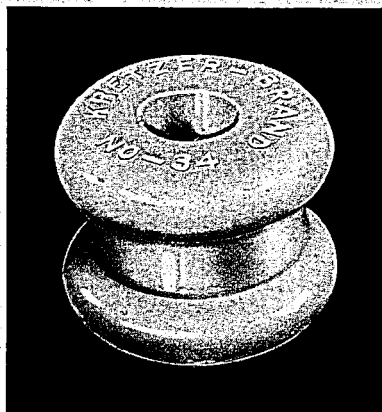
For use in open-holder style Braces in connection with our Universal or Collar Porcelain Attachments. It may also be used as a line attachment in connection with No. 40 Screw Attachment and No. 54 Disperser Attachment.



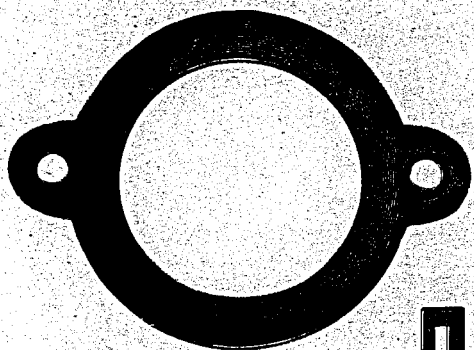
No. 32. Collar Porcelain Attachment.



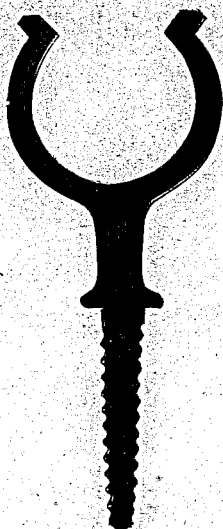
No. 33. WART
Porcelain Attachment, for use with "Shurhold" Braces, Scroll Braces; or with our No. 40 or No. 54 Attachments as a line fastener.



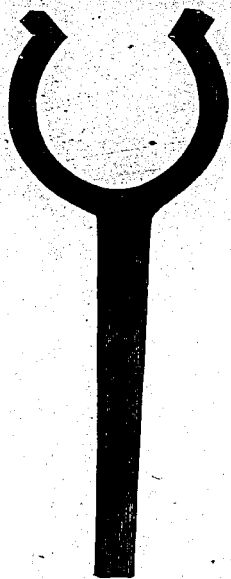
No. 34. CABLE
Porcelain Attachment, for use as a Line Fastener with Cable Rods, with No. 40 or No. 54 Attachments.



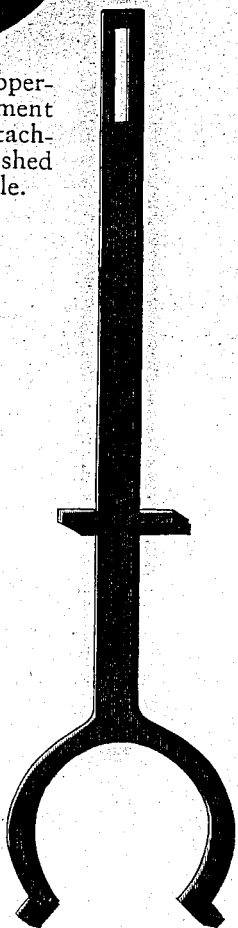
No. 39. Solid Copper-Bronze Collar Attachment for No. 32. This attachment can also be furnished in Galvanized malleable.



No. 40. Solid Copper-Bronze Screw Attachment for Porcelain fastener. Also furnished in galvanized malleable.



No. 41. Solid Copper-Bronze Brick Attachment for Porcelain fastener. Also furnished in Galvanized malleable.



No. 42. Solid Copper-Bronze Chimney Attachment for Porcelain fastener.

No. 42A. Solid Copper Bronze Non-Insulation Chimney Attachment. Also furnished in Galvanized malleable.



No. 44. Screw for Universal Porcelain Attachment.



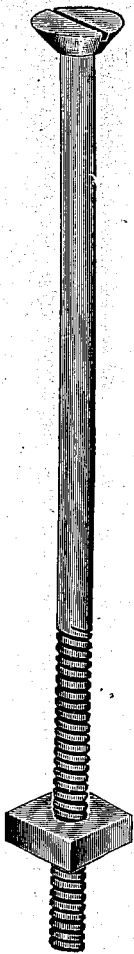
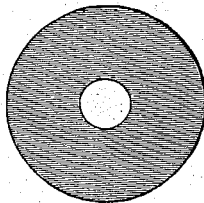
No. 45. $2\frac{3}{4}$ -inch Nail for Universal Porcelain Attachment.



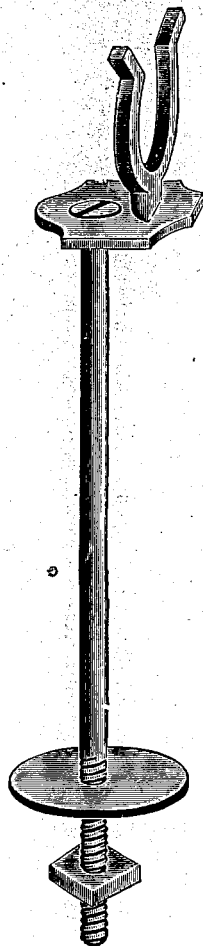
No. 46. Leather Washer for Universal Porcelain Attachment.



No. 47. Iron Washer for Bolt for Chimney Attachments.



No. 48



No. 49

No. 48. Bolt for Universal Porcelain Attachment 6 inches long, $7/32$ -inch thick.

No. 48A. Bolt for "The Perfect" Chimney Attachment 5 inches long, $1/4$ -inch thick.

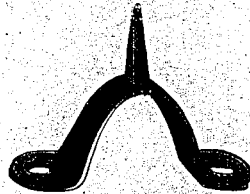
No. 49. "The Perfect" Non-Insulation Chimney Attachment with Copper-Bronze holder. No. 43 Perfect Chimney Attachment is made to fit porcelain fastener.



Loop Attachment

No. 50. For $\frac{3}{4}$ -inch Rods.

No. 50A. For $\frac{5}{8}$ -inch Rods.



Lateral Point

No. 51. For $\frac{3}{4}$ -inch Rods.

Solid Copper-Bronze

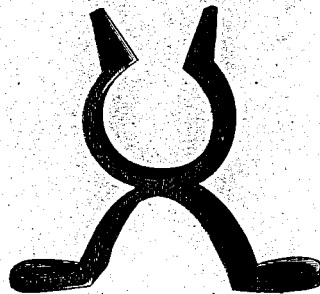


Band Attachment carried in all sizes and styles for all rods.
No. 52. For Star Rods, Galvanized.

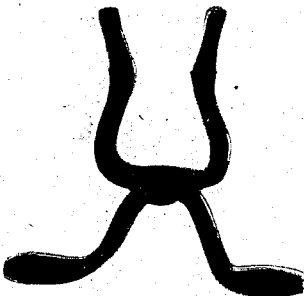
No. 52A. For $\frac{5}{8}$ -inch Rods, Copper.

No. 52B. For $\frac{1}{2}$ -inch Rods, Copper.

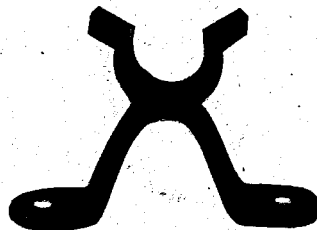
No. 52C. For $\frac{3}{8}$ and $\frac{7}{16}$ -inch Rods, Copper.



No. 53. Solid Copper-Bronze Non-Insulation Nail Disperser Attachment, for $\frac{3}{4}$ -inch Star Rods. Also furnished in Galvanized malleable.



No. 53A. Galvanized Pressed Steel Nail Disperser for $\frac{3}{4}$ -inch Star Rods; welded, non-breakable.

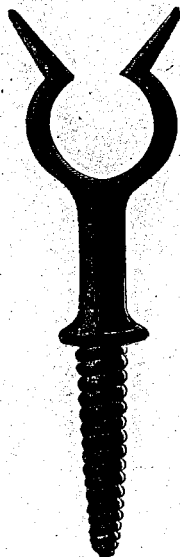


No. 53B. Solid Copper-Bronze Disperser Attachment, for Copper Cable Rods.



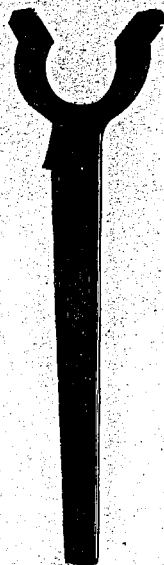
No. 56. Solid Copper-Bronze Non-Insulation Screw Disperser Attachment, for $\frac{3}{4}$ -inch Star Rods. Also furnished in Galvanized malleable.

No. 56B. For Cable Rods..

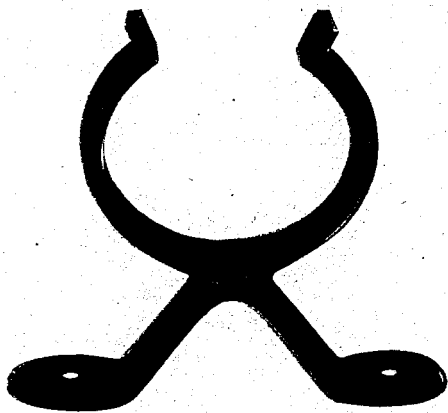


No. 55. Solid Copper-Bronze Non-Insulation Brick Attachment for $\frac{3}{4}$ -inch Star Rods. Also furnished in Galvanized malleable.

No. 55B. For Cable Rods.



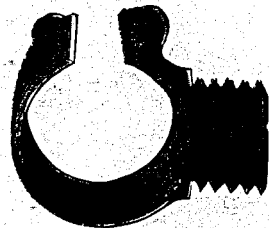
No. 57. Solid Copper-Bronze Non-Insulation Cable Drive Attachment. Also furnished in Galvanized malleable.



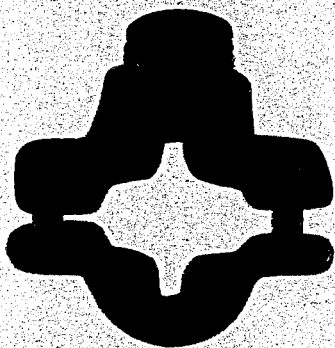
No. 54. Nail Disperser Attachment, in Solid Copper-Bronze, for use with No. 31 or No. 34 Line fasteners. For Star Rod or Cable. Also furnished in Galvanized malleable.



Cable Clamp Attachment
No. 74. For Cable Rod.



Male Clamp Attachment
No. 75. Tenon $\frac{5}{8}$ -inch for $\frac{3}{4}$ -inch Star Rod.

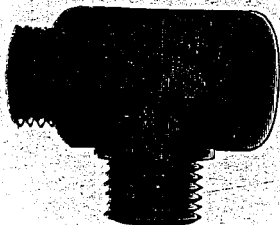


No. 75A. Solid Copper-Bronze Male Clamp Connector. For Star Rods.



Two Male Y Connector

No. 77. Tenons $\frac{5}{8}$ -inch. For Star Rods.



Two Male T Connector

No. 76. Tenons $\frac{5}{8}$ -inch. For Star Rods.



Double Female Coupling

No. 78. Hole $\frac{5}{8}$ -inch.

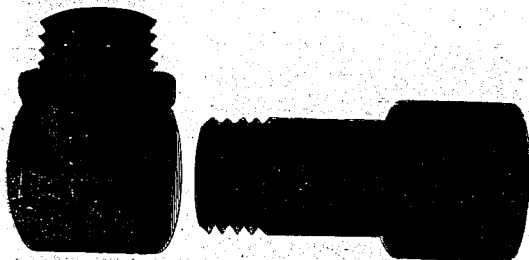


Double Male Coupling

No. 79. Tenons $\frac{5}{8}$ -inch.

No. 78A. Hole $\frac{7}{16}$ -inch. For Star Rods.

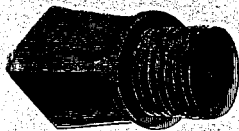
No. 79A. Tenons $\frac{7}{16}$ -inch. For Star Rods.



Patent Two Male T Connector

No. 76A. Tenon and Hole, $\frac{5}{8}$ -inch.

The sleeve revolves upon the spindle section, and can always be placed exactly in position for use. A great practical improvement over the No. 76 connector. For Star Rods.

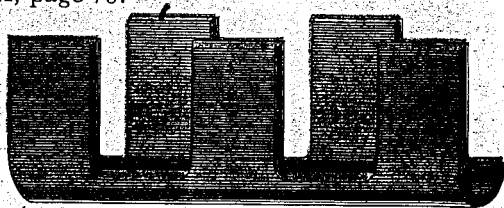


Loose Couplings for Star Rods.

No. 80. Male Coupling
for $\frac{3}{4}$ -inch Rods.

No. 81. Female Coupling
for $\frac{3}{4}$ -inch Rods.

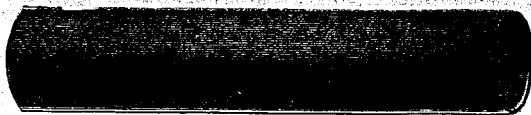
To put on the ends of Star Rod that has been cut. For Coupling Block and Swedge to fasten these couplings on Star Rod, see 184 and 184A, page 78.



Loose Coupling for Cable Rod.

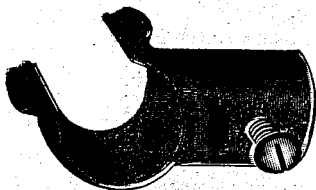
No. 82. For $\frac{5}{16}$ -inch Cable Rod.
No. 82A. For $\frac{3}{8}$ -inch Cable Rod.

No. 82B. For $\frac{7}{16}$ -inch Cable Rod.
No. 82C. For $\frac{1}{2}$ -inch Cable Rod.



Loose Coupling for Tube Rod.

No. 83. For $\frac{5}{8}$ -inch Tube Rod.
No. 83A. For $\frac{9}{16}$ -inch Tube Rod.



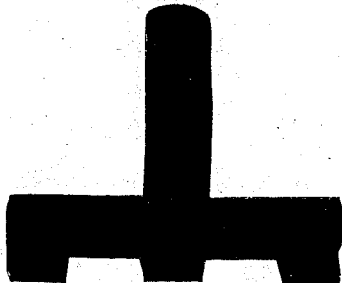
Cable Splice Connector.

No. 84. For $\frac{5}{16}$ -inch Cable Rod.

No. 84A. For $\frac{3}{8}$ -inch Cable Rod.

No. 84B. For $\frac{7}{16}$ -inch Cable Rod.

No. 84C. For $\frac{1}{2}$ -inch Cable Rod.



New "Shurgrip" Cable Splice Connector, for Copper Cable Rods, in Soft Solid Copper Bronze.

84D. For $\frac{3}{8}$ -inch Cable Rod.

84E. For $\frac{7}{16}$ -inch Cable Rod.

84F. For $\frac{1}{2}$ -inch Cable Rod.



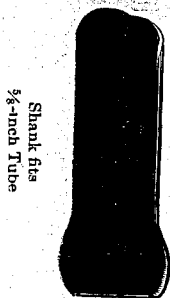
Transition Coupling

- | | | |
|----------|-------|----------------------|
| No. 85. | Tenon | $\frac{5}{8}$ -inch. |
| | Hole | $\frac{1}{8}$ -inch. |
| No. 85A. | Tenon | $\frac{1}{8}$ -inch. |
| | Hole | $\frac{5}{8}$ -inch. |



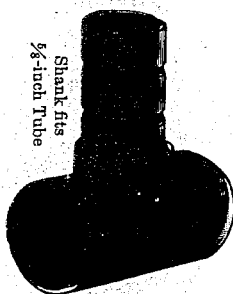
Cable Clamp Connector

- No. 86. For $\frac{1}{16}$ - and $\frac{3}{8}$ -inch Cable.
 No. 86A. For $\frac{1}{8}$ -inch Cable.
 No. 86B. For $\frac{1}{2}$ -inch Cable.



Copper T Burr for Tube and Cable Rods

- No. 87. For $\frac{5}{8}$ -inch Tube Rod.
 No. 87A. For $\frac{3}{8}$ -inch Cable Rod.
 No. 87B. For $\frac{1}{8}$ -inch Cable Rod.



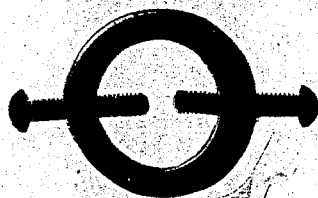
Ring Connector for Tube Rod

- No. 88. For $\frac{5}{8}$ -inch Rod.



Double Ground Burr

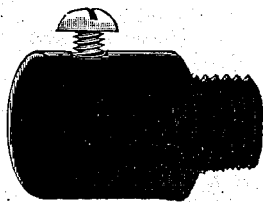
No. 89. Tenons $\frac{5}{8}$ -inch.
Hole $\frac{5}{8}$ -inch.



Ball Ring

No. 90. For $\frac{3}{4}$ -inch Rods.
No. 90A. For $\frac{5}{8}$ -inch Rods.
No. 90B. For Tubular Cable
Brace.

Used to support Balls or other
Ornaments on Point Rods.



Cable Transition Coupling

No. 91. Tenon $\frac{5}{8}$ -inch, Hole
 $\frac{3}{8}$ -inch.

No. 91A. Tenon $\frac{5}{8}$ -inch, Hole
 $\frac{7}{16}$ -inch.

No. 91B. Tenon $\frac{5}{8}$ -inch, Hole
 $\frac{1}{2}$ -inch.

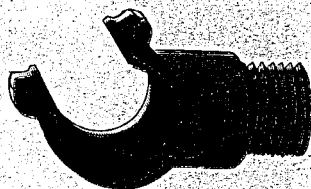


"Shurgrip" Cable Transition
Coupling in Solid Copper-Bronze,
Tenon $\frac{5}{8}$ -inch.

No. 91D. For $\frac{3}{8}$ -inch Cable Rod.

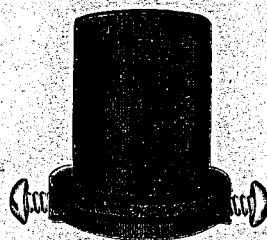
No. 91E. For $\frac{7}{16}$ -inch Cable Rod

No. 91F. For $\frac{1}{2}$ -inch Cable Rod.



Star and Cable Rod Connector

No. 92. Tenon $\frac{5}{8}$ -inch.



Arrow and Vane Thimble

No. 94. Tube Style. Carried in all sizes.

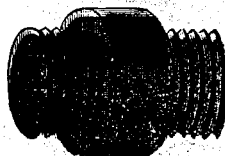


"Shurgrip" Star and Cable Rod Connector in solid Copper-Bronze. Tenon $\frac{5}{8}$ inch.

No. 92A. For $\frac{3}{8}$ -inch Cable Rod.

No. 92B. For $\frac{7}{8}$ -inch Cable Rod.

No. 92C. For $\frac{1}{2}$ -inch Cable Rod.



R

L



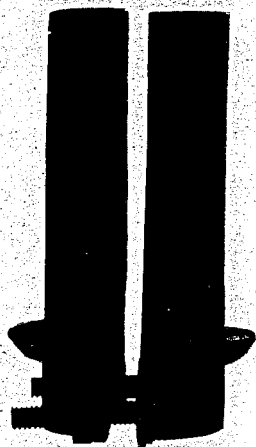
L

R

Right and Left Coupling

No. 93. Tenon and Hole $\frac{5}{8}$ -inch.

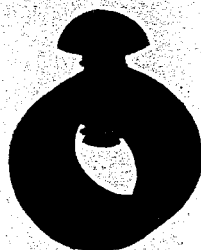
A great convenience for connecting Rods where rods are brought together and cannot be turned again; can also be used to allow connection for test purposes.



"Shurfit" Arrow and Vane Thimble in Solid Copper-Bronze.

94L. For Arrows with $\frac{3}{4}$ -inch Star Rod.

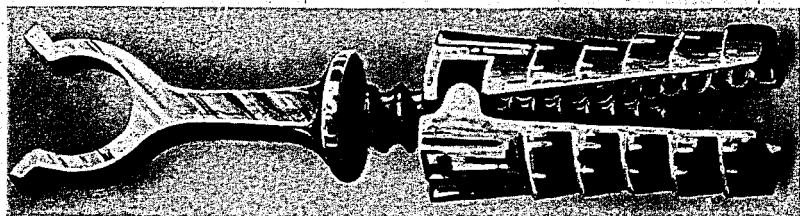
94M. For Vanes with $\frac{3}{4}$ -inch Star Rod.



No. 95. New Friction Ring, in Solid Copper-Bronze, for clamping on Copper Cable Rod with Porcelain or Dispenser Attachment to stretch Cable tight.



No. 96. New "Perfect-Contraction" Coupling, in Solid Copper-Bronze, for connecting Cable Rod to Point, and Tubular Cable Brace. To fit $\frac{3}{8}$ -inch and $\frac{1}{2}$ -inch sizes.

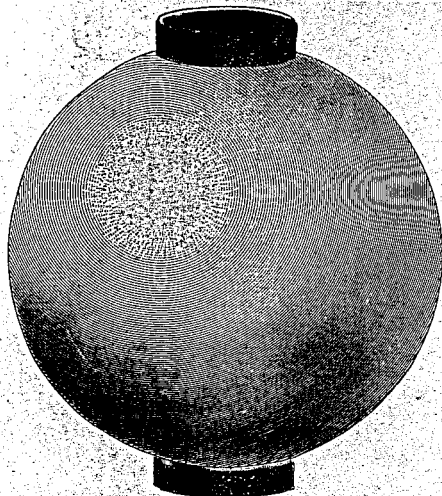
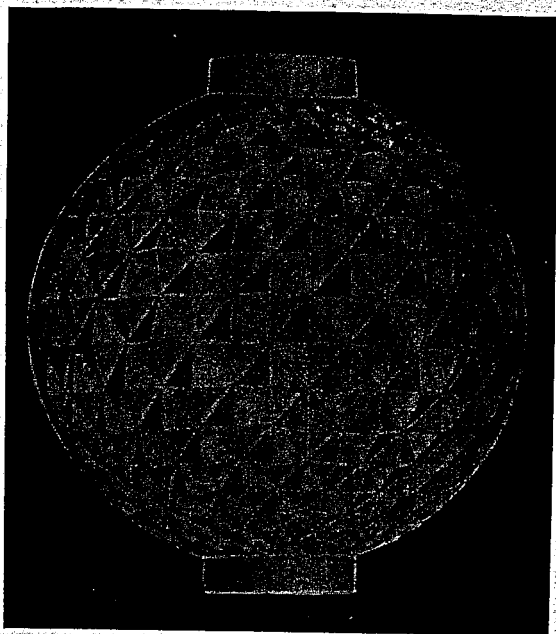


No. 97. "Shurhold" Expansion Bolt, in solid Copper-Bronze for use with any style insulation or non-insulation screw to fasten rod to brick or stucco buildings.

THE LIGHTNING ROD CO.
Special Diamond Glass Balls

5-Inch Size.

Furnished in
the following
colors: Opal
(white), Tur-
quoise (Blue),
Red, Silver,
Gold.



Blue Jewelry Glass Ball

4 1/2-Inch Size.

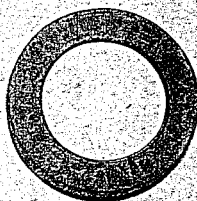
No. 100 White

No. 101 Red

No. 102 Turquoise Blue

No. 104 Silver

No. 106 Gold



Kretzer Brand
Trade Mark on
Glass Ball Cap.

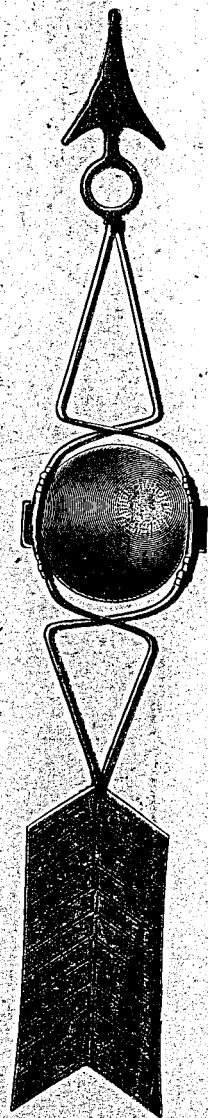
33-INCH METAL TAIL WIRE ARROW AND BALL

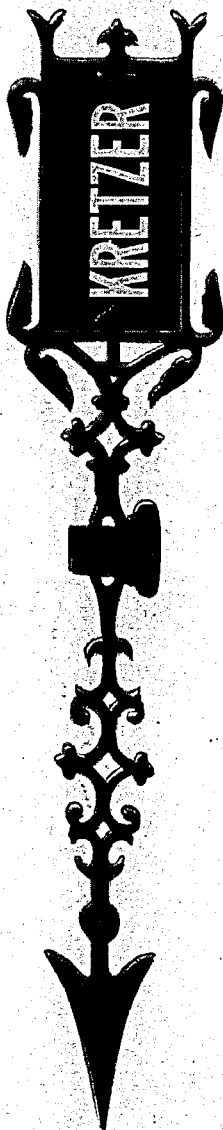
No. 114. With supporting
ring for $\frac{3}{4}$ -inch Rods.

No. 114A. With supporting
ring for $\frac{5}{8}$ -inch Rods.

No. 114B. With supporting
ring for Tubular Cable Brace.

Glass Balls of any size or
color can be used in this arrow.





ARROW VANES

Sizes, 18 and 23 Inches.

Glass and Metal Tail.

With entire Solid Copper-Bronze Casting. The Glass being held in place permanently by wing of casting. Also furnished in malleable white finish.

- No. 110. 18-inch, with thimble to fit $\frac{3}{4}$ -inch Rods.
- No. 110A. 18-inch, with thimble to fit $\frac{5}{8}$ -inch Rods.
- No. 110B. 18-inch, with thimble to fit Tubular Cable Brace.
- No. 112. 23-inch, with thimble to fit $\frac{3}{4}$ -inch Rods.
- No. 112A. 23-inch, with thimble to fit $\frac{5}{8}$ -inch Rods.
- No. 112B. 23-inch, with thimble to fit Tubular Cable Brace.
- No. 113. 23-inch, Metal Tail, with thimble to fit $\frac{3}{4}$ -inch Rods.
- No. 113A. 23-inch, Metal Tail, with thimble to fit $\frac{5}{8}$ -inch Rods.
- No. 113B. 23-inch, Metal Tail, with thimble to fit Tubular Cable Brace.



- No. 125. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 125A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 125B. 33-inch Vane with thimble for Tubular Cable Brace.
- No. 125C. 23-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 125D. 23-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 125E. 23-inch Vane with thimble for Tubular Cable Brace.

No. 125 FULL BODIED HORSE VANE

23- and 33-Inch Sizes.

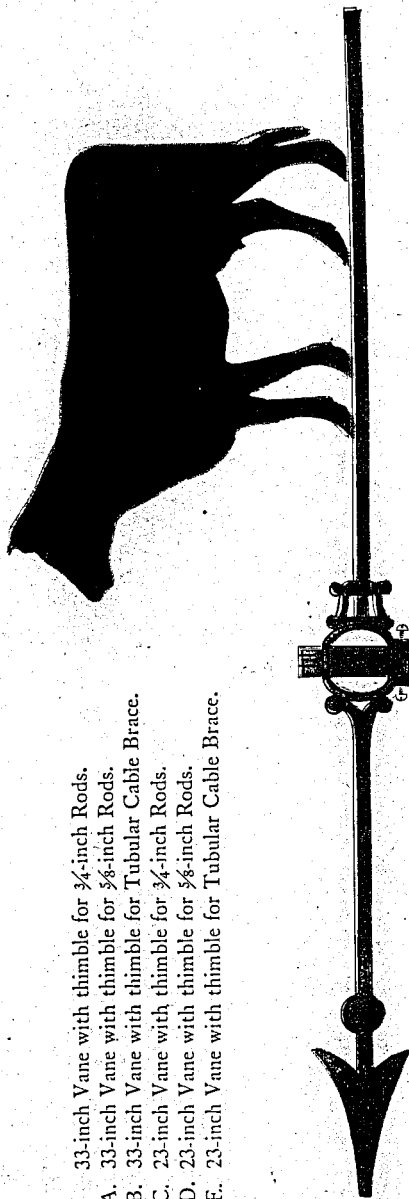
With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tube or Tubular Cable Brace.

These are high-class and handsome Vanes. The Body is made of hard zinc and the finished vane is accurately balanced.

- No. 126. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 126A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 126B. 33-inch Vane with thimble for Tubular Cable Brace.
- No. 126C. 23-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 126D. 23-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 126E. 23-inch Vane with thimble for Tubular Cable Brace.



No. 126 FULL BODIED COW VANES

23- and 33-Inch Sizes.

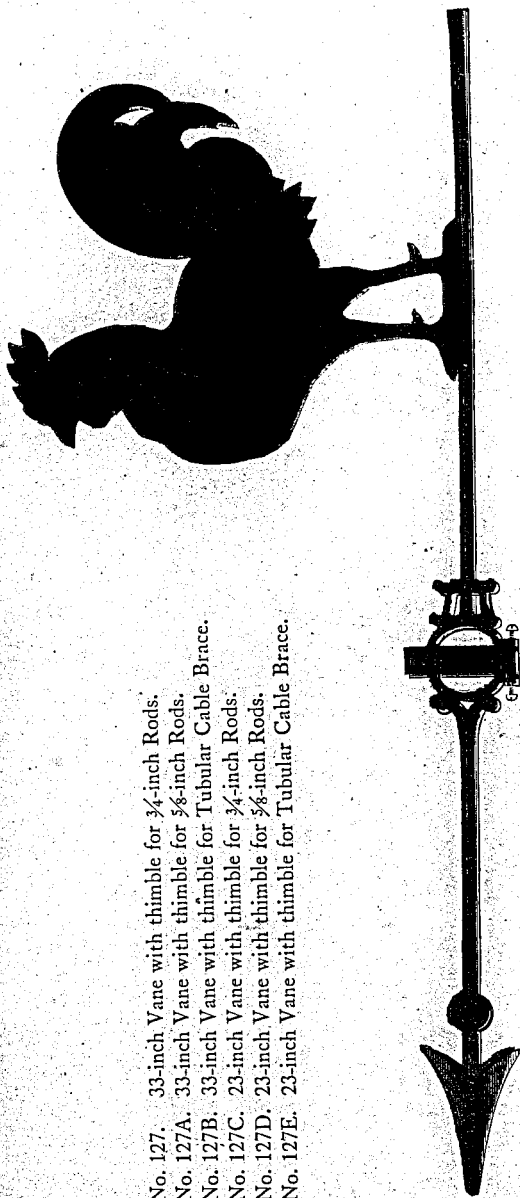
With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tube or Tubular Cable Braces.

This is a very handsome Cow Vane and is made of the finest materials. The Bodies are made of hard zinc. Hereford and Holstein finish can also be furnished.

- No. 127. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
 No. 127A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
 No. 127B. 33-inch Vane with thimble for Tubular Cable Brace.
 No. 127C. 23-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
 No. 127D. 23-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
 No. 127E. 23-inch Vane with thimble for Tubular Cable Brace.



No. 127 FULL BODIED ROOSTER VANE

23- and 33-Inch Sizes.

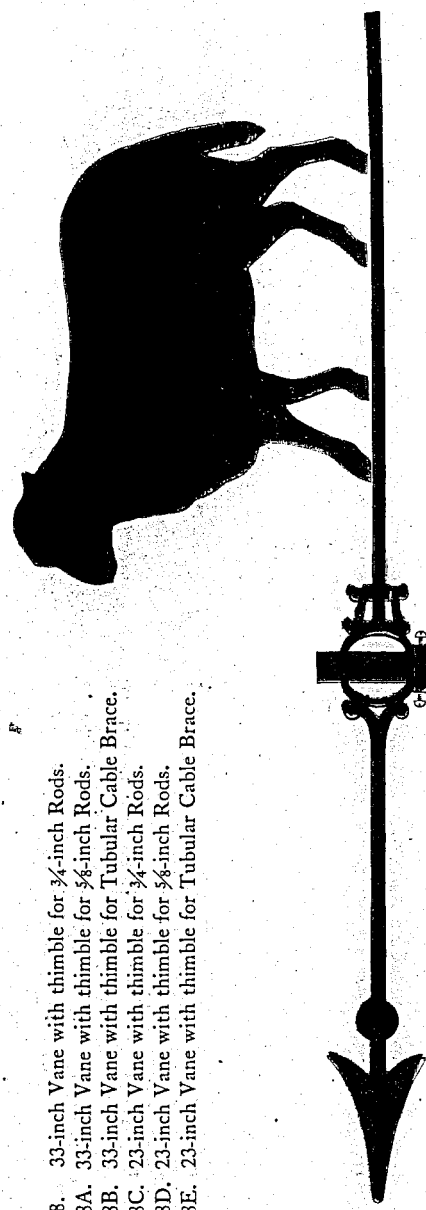
With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tube or Tubular Cable Braces.

This is a very handsome Rooster Vane and is made of the finest materials. The Bodies are made of hard zinc and are accurately balanced.

- No. 128. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 128A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 128B. 33-inch Vane with thimble for Tubular Cable Brace.
- No. 128C. 23-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
- No. 128D. 23-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
- No. 128E. 23-inch Vane with thimble for Tubular Cable Brace.



No. 128 FULL BODIED SHEEP VANE

23- and 33-Inch Sizes.

With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tubes or Tubular Cable Braces.

This is a very handsome Sheep Vane and is made of the finest materials. The bodies are made of hard zinc and are accurately balanced.

- No. 129. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
 No. 129A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
 No. 129B. 33-inch Vane with thimble for Tubular Cable Brace.



No. 129 FULL BODIED MULE VANE

33-Inch Size.

With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tubes or Tubular Cable Braces.

This is a very handsome Mule Vane and is made of the very best materials. The Bodies are made of hard zinc and are accurately balanced.

- No. 130. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
 No. 130A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
 No. 130B. 33-inch Vane with thimble for Tubular Cable Brace.



No. 130 FULL BODIED HOG VANE

33-Inch Size.

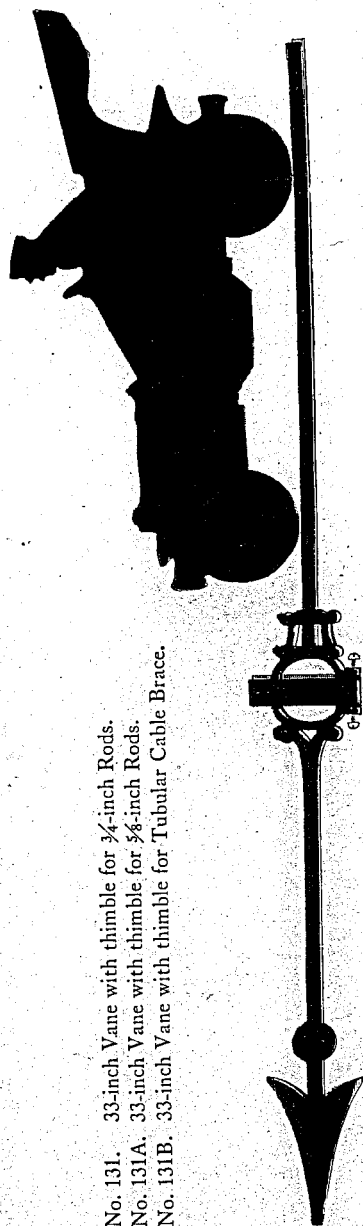
With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Rods, Tubes or Tubular Cable Braces.

This is a very handsome Hog Vane and is made of the very finest materials. The Bodies are made of hard zinc and are accurately balanced.

- No. 131. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
 No. 131A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
 No. 131B. 33-inch Vane with thimble for Tubular Cable Brace.



No. 131 FULL BODIED AUTO VANE

33-Inch Size.

With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tubes or Tubular Cable Braces.

This is a very handsome Auto Vane and is made of the very finest materials. The Bodies are made of hard zinc and are accurately balanced.

- No. 132. 33-inch Vane with thimble for $\frac{3}{4}$ -inch Rods.
No. 132A. 33-inch Vane with thimble for $\frac{5}{8}$ -inch Rods.
No. 132B. 33-inch Vane with thimble for Tubular Cable Brace.



No. 132 FULL BODIED BULL VANE.

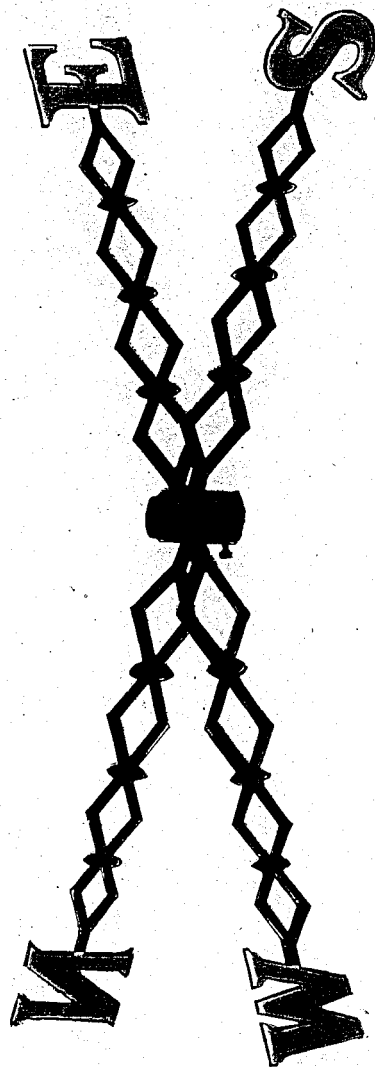
33-Inch Size.

With Solid Copper-Bronze or White Malleable Spear Casting.

Body finished in Bronze or Gold Leaf.

To fit $\frac{3}{4}$ -Inch Star Rods, Tubes or Tubular Cable Braces.

This is a very handsome Bull Vane and is made of the finest materials. The Bodies are made of hard zinc. Hereford and Holstein finish can also be furnished.



No. 139 DIAMOND POINTS OF COMPASS

20-inch Size.

Carried in Solid Copper-Bronze, or White Finish Malleable Iron.

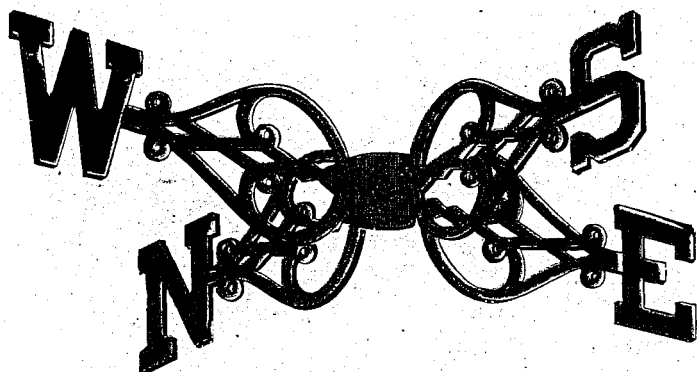
A neat attractive design, the two arms interlock each other and are supported by a thimble with two set screws.

No. 139. With thimble for $\frac{3}{4}$ -inch Rods.

No. 139A. With thimble for $\frac{5}{8}$ -inch Rods.

No. 139B. With thimble for Tubular Cable Brace.

No. 140 SCROLL POINTS OF COMPASS



19-Inch Size.

Carried in Solid Copper-Bronze, or White Finish Malleable Iron.

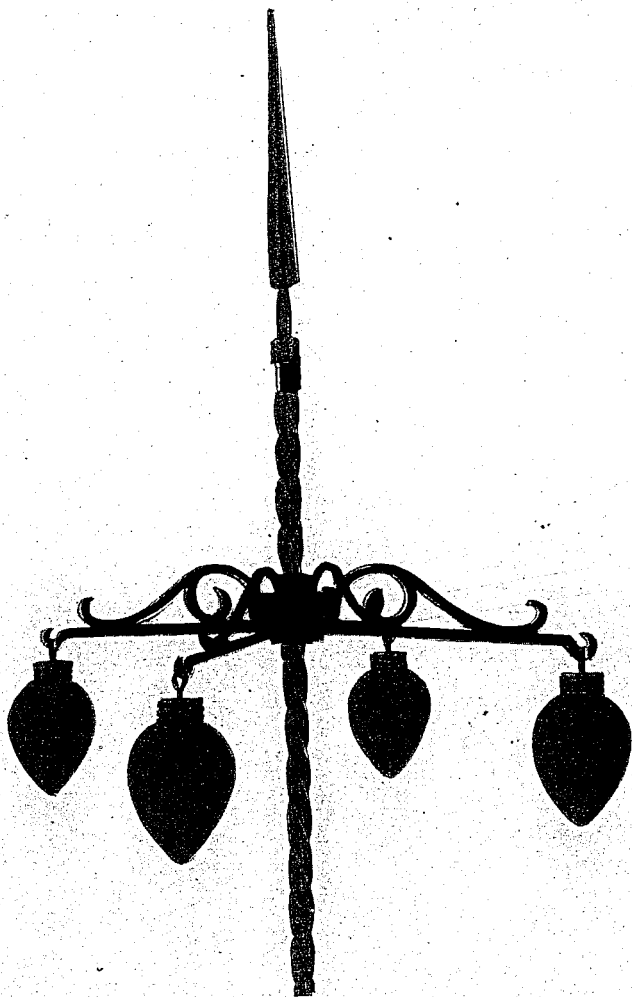
The four arms are detachable and fit into the central hub.

No. 140. With hub for $\frac{3}{4}$ -inch Rods.

No. 140A. With hub for $\frac{5}{8}$ -inch Rods.

No. 140B. With hub for Tubular Cable Brace.

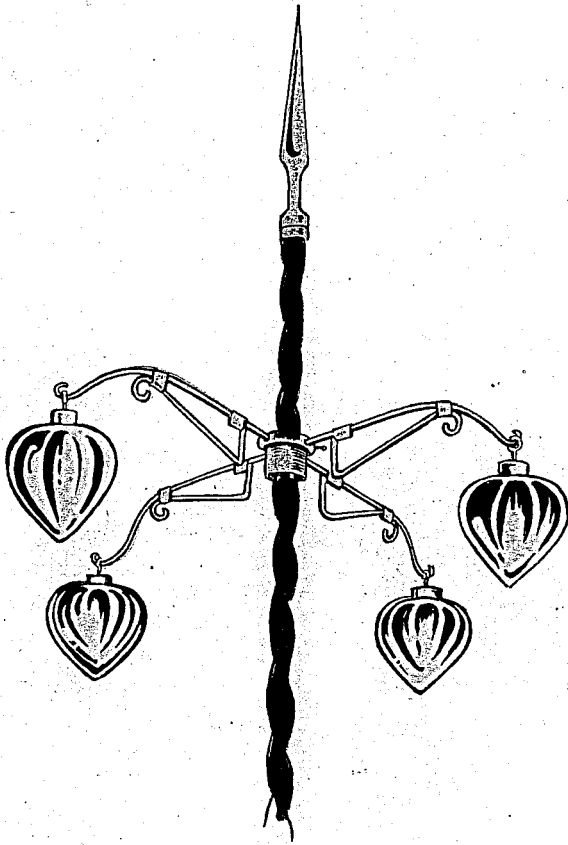
SPECIAL PENDANT VANE



Solid Copper-Bronze Arm Castings.

Balls furnished in Gold, Silver, Ruby, Opal and Turquoise Blue Colors.

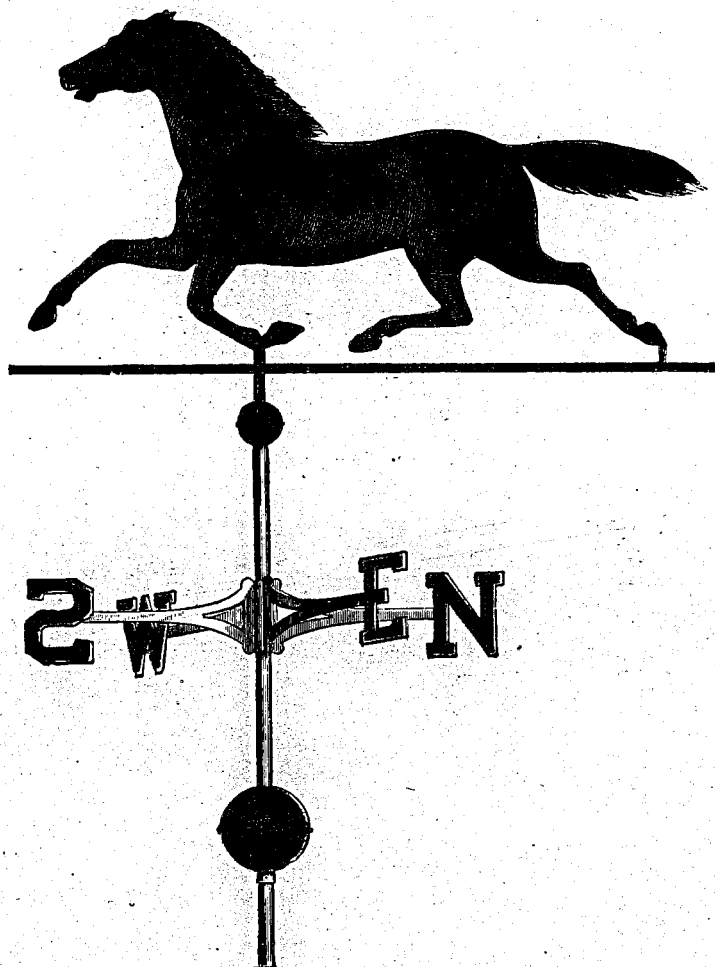
PENDANT VANE



No. 141. Balls furnished in Gold, Silver, Ruby, Opal and Turquoise Blue Colors.

These Vanes are light. and well made. and make a very handsome ornament.

FULL BODIED HORSE VANE

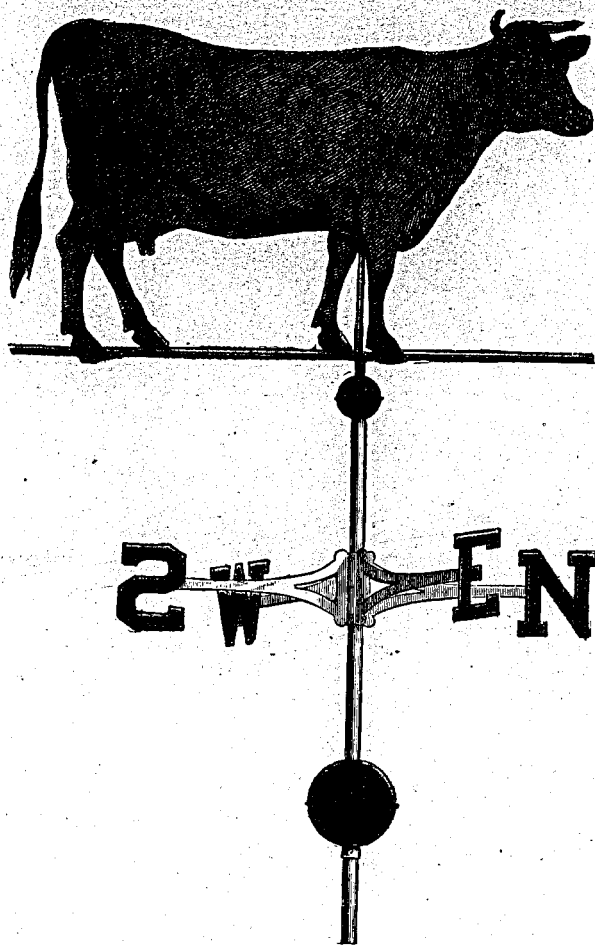


This Vane is made of copper and covered with Pure Gold Leaf. It is furnished complete as illustrated.

No. 150. Horse, 25 inches long.

No. 150A. Horse, 31 inches long.

FULL BODIED COW VANE

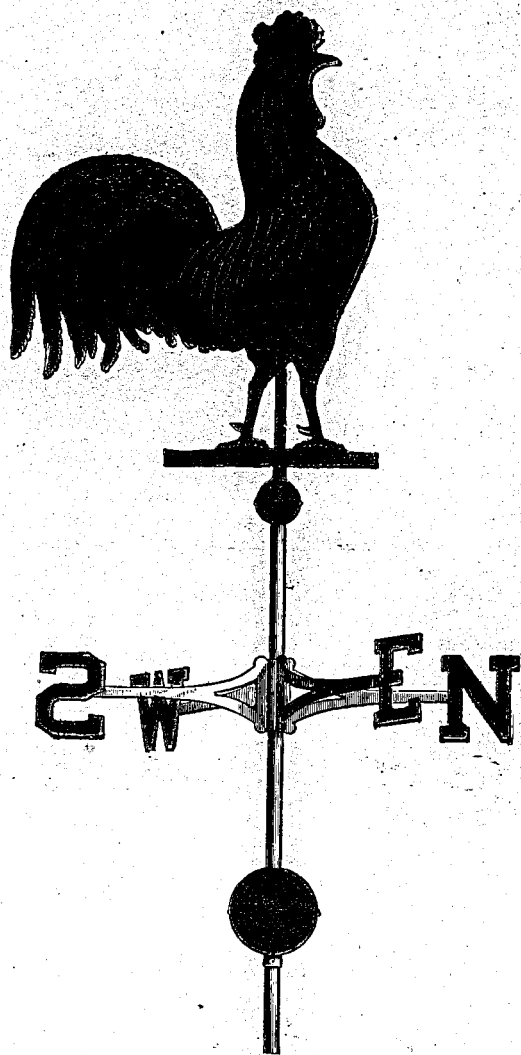


This Vane is made of copper and covered with Pure Gold Leaf. It is furnished complete as illustrated.

No. 151. Cow 28 inches long.

No. 151-A. Cow 36 inches long.

FULL BODIED ROOSTER VANE



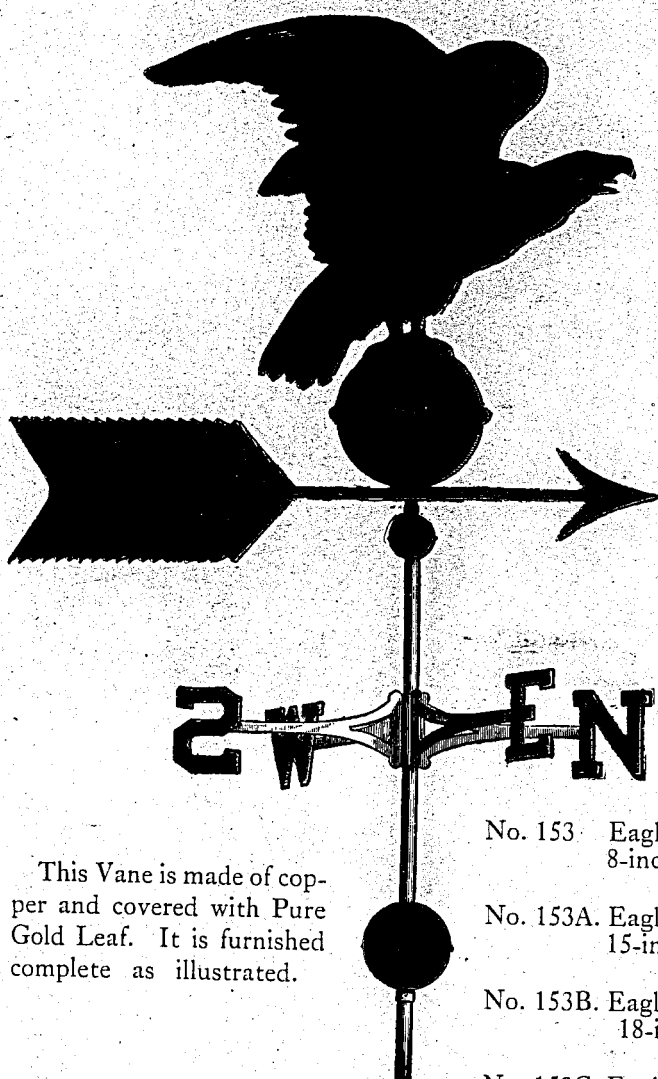
This Vane is made of copper and covered with Pure Gold Leaf. It is furnished complete as illustrated.

No. 152. Rooster 18 in. high.

No. 152A. Rooster 24 in. high.

No. 152B. Rooster 28 in. high.

FULL BODIED EAGLE VANE



This Vane is made of copper and covered with Pure Gold Leaf. It is furnished complete as illustrated.

The Arrow is necessary to make this Vane revolve.

No. 153 Eagle with wings
8-inch spread.

No. 153A. Eagle with wings
15-inch spread.

No. 153B. Eagle with wings
18-inch spread.

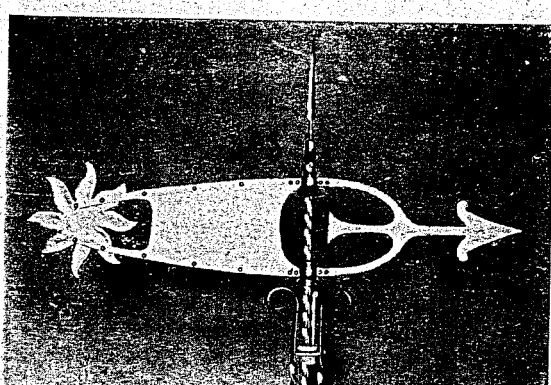
No. 153C. Eagle with wings
24-inch spread.

No. 153D. Eagle with wings
30-inch spread.

SPECIAL GARAGE VANE

Made especially for Garages and Fancy Barns.

Size 39x8 Inches—Weight 5 lbs.

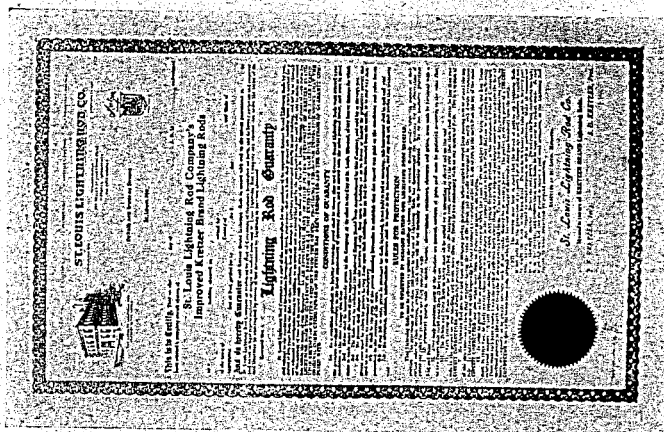


It is durably constructed of solid copper bronze throughout, firmly riveted, and complete with two thimbles. A Star Rod top will support it in a proper rigid manner, but if the rod top is of copper tube, a special steel support will be necessary. Furnished in pure gold leaf or verdigreen finish.

Made only to order.

OUR PERPETUAL GUARANTEE

All of our Lightning Rods perform the work that they are expected to perform under any and all conditions. Our Perpetual Guaranty is our bond that efficiency, economy and service are built into our products. The superior quality of the materials used, the high grade of workmanship on that material—together with a rigid factory inspection insures a proper and durable finished product. The superior quality of the product itself, combined with the field supervision of our national inspection organization makes it possible for us to guarantee to the property owner that an installation of our rod means a lifetime of service in the matter of affording complete protection against loss by lightning. Some lightning rod companies issue guarantees as a matter of form and without ever knowing how their material has been installed. Other companies issue forms of guaranty which in turn are issued by the dealers without the company's knowledge of how the installations are made, but the Perpetual Guaranty that backs up our rod, in addition to being a legal obligation assumed by us in writing, is a binding moral obligation upon us to render to the property owner through our product and our service a lifetime of perfect protection against loss by lightning. Our dealers are not only thoroughly schooled in proper methods of installation but they are in addition held to a strict accountability for their work.



SALES ORGANIZATION

THE SUCCESS of our customers is due in a very large measure to the sales-assistance which we render to them through our large traveling force of sales experts. You may be one of the best salesmen, but your experience has taught you that there are property-owners to whom you cannot sell without the assistance of another salesman. The large and varied experience that our salesmen have had and their intimate knowledge of the successful sales plans of dealers generally places them in a position to render a sales service that is sure to have value.

In addition to this field-assistance, the success of our dealers is further assured by the maintainance of a corps of expert salesmen in our office who are ready at all times to make suggestions and to give advice to assist the dealer in closing different sales and to keep his business on a safe and sound basis.

Literature, Samples, Order Books, etc. are cheerfully sent to dealers upon request.

ADVERTISING SERVICE

ADVERTISING properly directed is the greatest force in business today—and we have kept pace with progress in this direction as is evidenced by the advertising service that we are rendering our customers. We have developed a real Advertising-Service Department that is at all times ready to assist you. The following are some of the ways in which we are constantly co-operating with our dealers.

Attractive follow-up Cards, sent free to prospects on receipt of lists of names.

Personal letters written to special prospects.

Personal letters sent to the influential property owners in your territory.

Installation Report Blanks which are mailed to us and are followed up to help you secure additional sales.

Free electrotypes for your local newspaper advertising.

The service of an expert copy-writer free of cost to you.

The valuable benefits of newspaper clipping reports of lightning losses occurring in your territory.

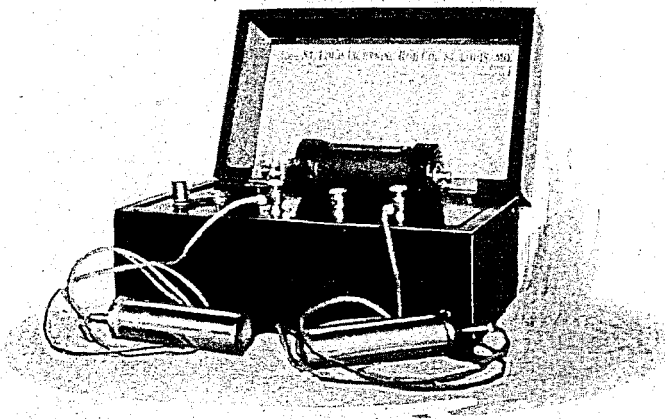
Attractive Advertising Slides for use in moving picture shows.

Help and Assistance in preparing exhibits at Fairs.

Free literature for distribution of all kinds.

Advertising Novelties, the kind that will appeal, such as memorandum books, advertising thimbles, etc. These items are changed from time to time.

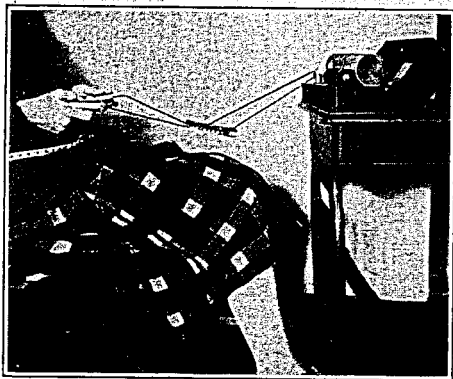
DEMONSTRATORS



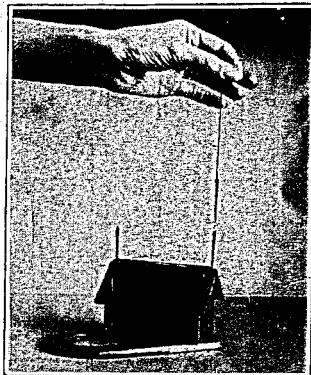
No. 175-A

This new battery if handled with ordinary care will last for many years. Whenever it gets weak, purchase another dry cell for it. We carry these cells in stock. There is no handle to keep turning—simply turn on the switch.

We are also prepared to furnish these batteries for medical purposes including foot plate and sponge electrode.



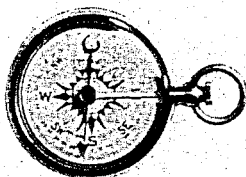
Demonstrating Battery



Demonstrating with Magnet,
Needle and House

The Magnet on right makes a very effective demonstration when used as above illustrated. It is 6 inches in length and has a strong magnetic attraction.

DEMONSTRATORS



Compass

This compass is thoroughly reliable, accurate and durable, and has a polished nickel case. Needle swings on jeweled bearing, and is arranged so that it may be stopped when not in use.

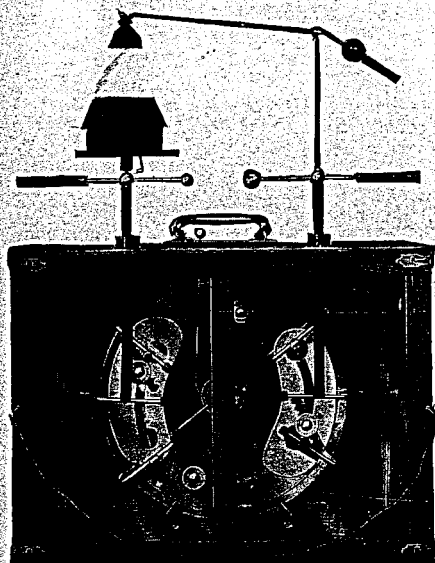
The Kretzer Demonstrator will make any demonstrations that can be made with either a Static Machine or Battery; in fact, it is a combination machine.

"Demonstration" is the life-blood of a sale. Show your prospect how lightning acts, with a Kretzer Demonstrator.

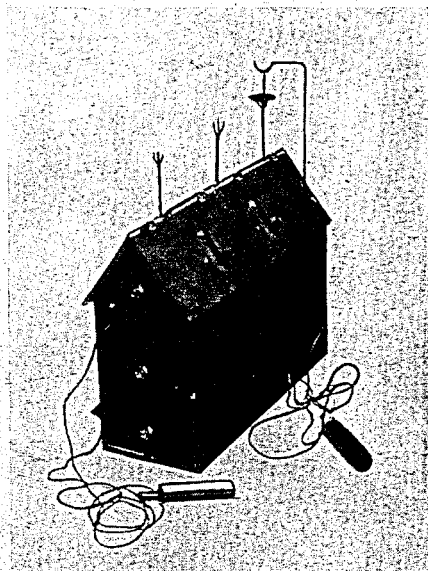
Complete Operating Instructions furnished with each machine.

Price on request.

F. O. B. St. Louis, Mo.



Static Electric Machine



Kretzer Demonstrator

This Static Machine is especially made and comes as illustrated.

Price on application.

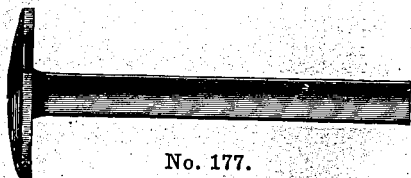


Battery and Sample Case Combined.

No. 176. Karatal cloth covered.

No. 176A. Leather covered.

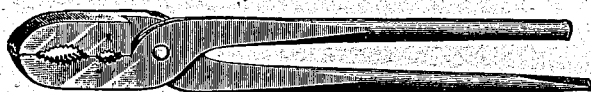
This case will hold a Battery, sample of Rod, Point, catalogue, order book and other papers usually carried by salesmen.



No. 177.

Nail Set 6 inches long.

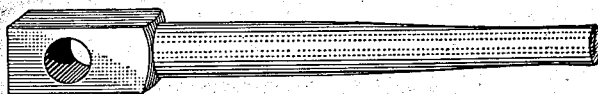
Convenient for inserting leather washer and nail into the Universal Porcelain attachment.



No. 178. 10-inch Steel Pliers.



No. 179. Coupling Tongs.
For Tube and Cable Rods.



No. 180-A. Star Rod Bender.

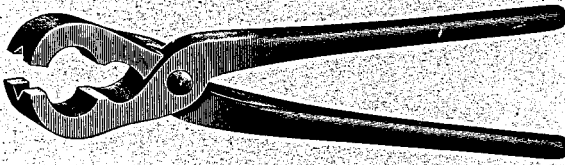


No. 181. Former for Tube Rod.

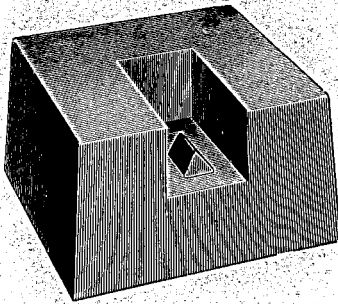


No. 182 Ground
Rod Drill.

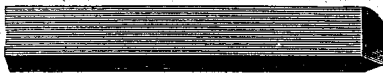
10 feet long,
 $\frac{3}{4}$ -inch thick,
with forged steel
point.



No. 183. Attachment Tongs.



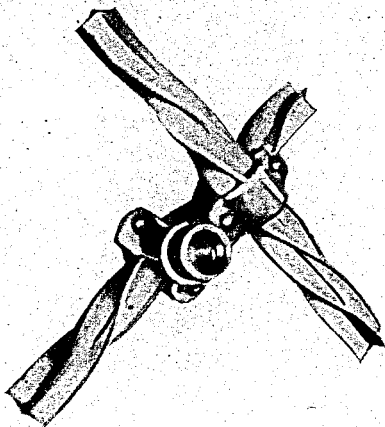
No. 184. Coupling Block.



No. 184A. Steel Swedge for Coupling Block.

Used to fasten Couplings Nos. 80 and 81 on Star Rod.

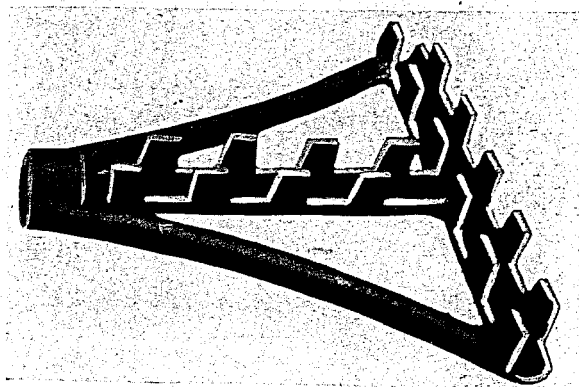
KRETZER CROSS-CONNECTION



For Star Rod Pure Copper Bronze

The illustration at left shows only one of the many ways (right angle) in which the Kretzer Cross-Connection is very useful. It is adjustable to any angle, and in addition has a connector with $\frac{5}{8}$ -inch hole for a Point Rod, and makes cutting unnecessary where two circuits cross.

MULTIWAY CONNECTOR



The Multiway Connector is made of pure copper bronze.

Weight—1 pound

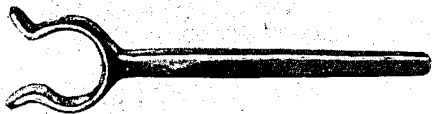
Made to fit all sizes of cable. Greatly strengthens the system by increasing the capacity of the Air Terminal. The cable itself being firmly fastened into the Multiway and in contact with the roof cable, carried up through the tube top into contact with the Point. The set-screw in the Multiway holds the tube firmly in place.

The Multiway can also be used to excellent advantage for repair purposes where light weight T Burrs have been used in the making of the original installation.

FOR STACK INSTALLATIONS



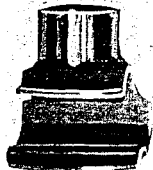
Heavy copper bronze Screw Attachment.



Heavy copper bronze Brick Attachment.



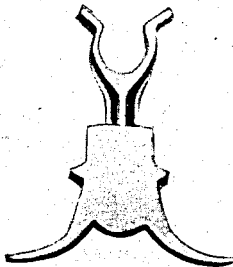
Heavy copper bronze Drive Attachment. For lead covered cable or tops.



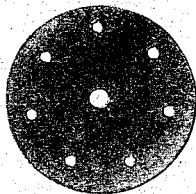
Heavy copper bronze Connector



Lead slugs for use with drive attachments.



Heavy copper bronze Concrete Fastener.



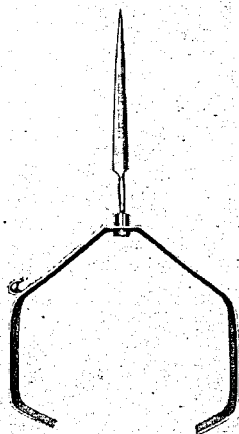
Heavy copper bronze Ground Plate.



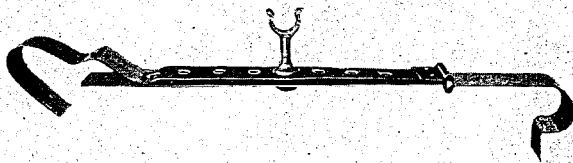
Solid copper point bar, $\frac{1}{4}$ in. diameter with Nickel Point. Platinum tip furnished if desired. Standard size 4 feet. Furnished in various lengths.

Our Stack Protection Systems are furnished according to specifications of Architects and Contractors. We are in a position to supply expert stack climbers if desired. Circuit conductor is generally the heavy $\frac{1}{2}$ inch 28 wire copper cable, which can be furnished with lead covering if desired. Attachment and Point Bar can also be furnished with lead covering.

TILE ROOF ATTACHMENTS



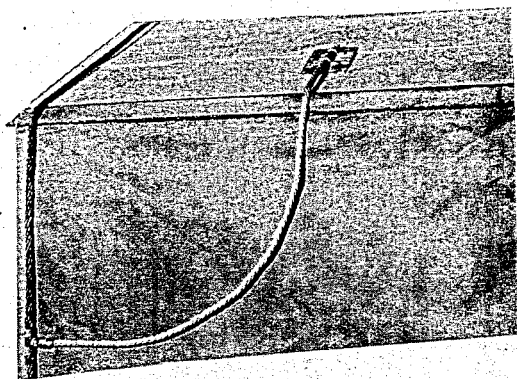
Tile Ridge Brace.



Kretzer Adjustable Tile Fastener made of soft copper with copper bronze attachment and lock nut. Flexible for any shape tile and adjustable to any length of tile.



Special Bracket Tile fastener with copper bronze attachment and holes arranged so that insertion of attachment holds fastener firmly in place.



ILLUSTRATING

The "PERFECT" Metal-Roof Lightning Rod Connection

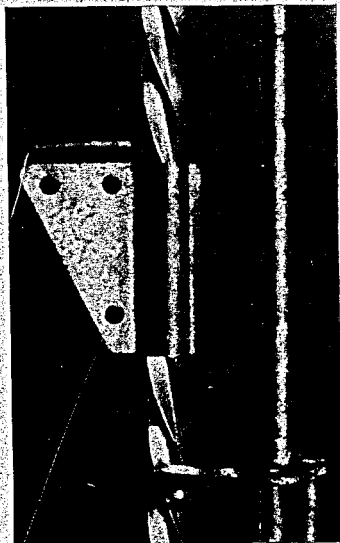
Size 36 inches long. Attached to metal roof and lightning rod system.

The "Perfect" Metal-Roof Connection solves the problem of properly connecting Metal-Roofs to the Lightning Rod System. The mere touching of the lightning rod to the metal roof (when the rod is installed on the non-insulation plan) does not prove a proper method of contact, and the attempt to connect by using wires is not only inefficient but in many cases really dangerous.

The "Perfect" Metal-Roof Connection is easily applied and will fit any rod made. It is furnished in two styles either with a Copper finish for use with Copper Covered, Copper-Coated, Copper Cable, and Copper Tube Rods or with the Galvanized Finish for connection to Galvanized Star Steel Rod.

Lightning Rod Brace Level

Made to fit either Star or Tube Point
Rods.



AUTOMATIC EXTENSION LADDER ROPE AND PULLEY

Made of clear, selected Norway Pine, rails $1\frac{3}{8} \times 2\frac{3}{4}$ inches; rounds $1\frac{1}{8}$ inches.

Holes for rounds bored clear through, leaving no pocket for moisture to cause rot.

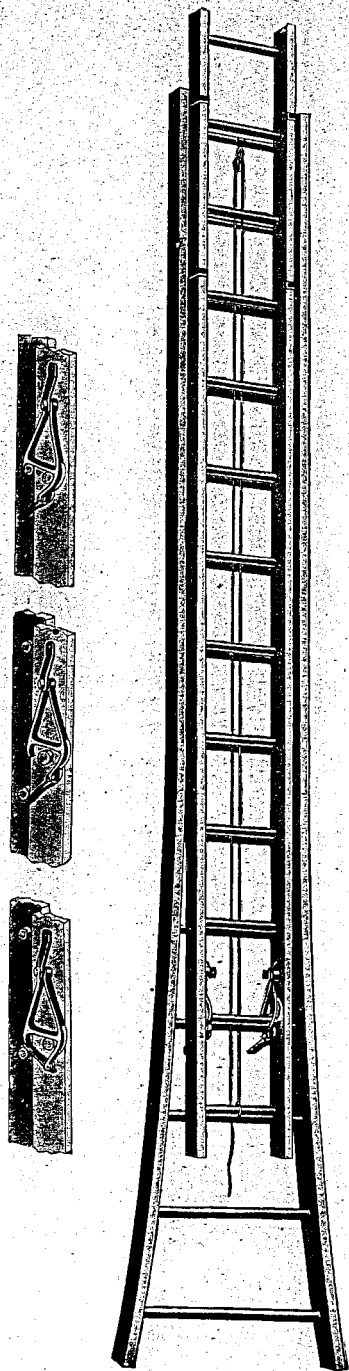
Automatic lock made of soft malleable iron, self acting, no springs, bolted to rails, no screws. Finished in aluminum. The only lock that will work with the ladder in a vertical position.

This ladder is ideal for lightning rod installation work, and is furnished in standard length—34 feet (one 16 ft. and one 18 ft.) .. with spread bottom. Special lengths up to 60 feet can be furnished.

Prices on request.

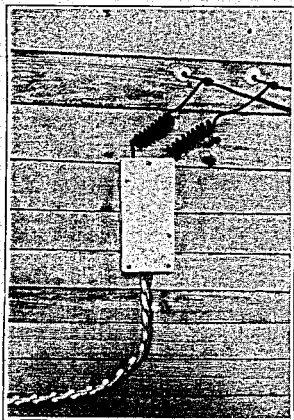


These Foot Plates are made in one size and will fit any average shoe.



THE KRETZER MAGNETIC SPARK GAP LIGHTNING ARRESTER

For Star or Cable Rod



Illustrating building rodded with Star Steel Lightning Rod, and KRETZER Magnetic Spark Gap Arrester.

Is carefully designed to afford Efficient, Durable and Reliable PROTECTION and prevent the conducting of heavy charges of lightning over the telephone wires into a building. It is particularly recommended for the protection of farm residences or barns.

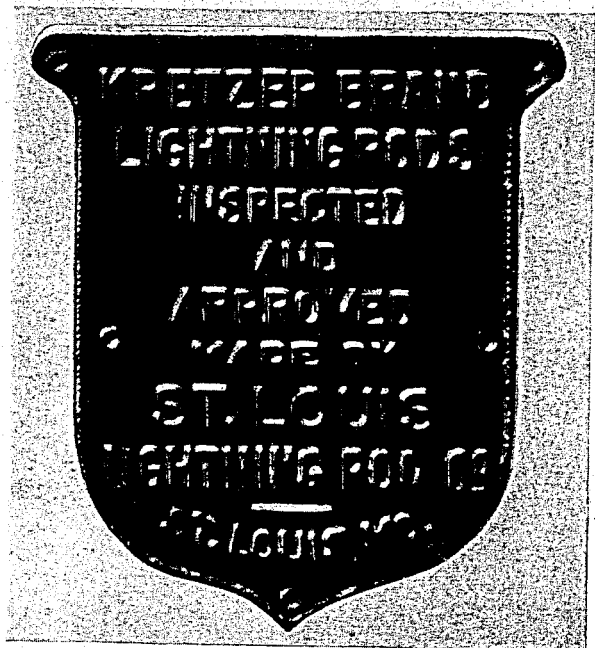
Its basic construction consists of two seven inch magnetic steel terminals secured in an insulating base, and separated from a third magnetic steel terminal by air gaps. Each magnetic steel terminal has seventeen points.

The single center terminal is to be connected to the ground rod of your lightning rod system or independently grounded. The two outer terminals are to be connected on the outside of your building, to the two telephone wires.

All terminals are supported on raised porcelain bosses which prevent short-circuiting by dust and moisture that might accumulate between the terminals.

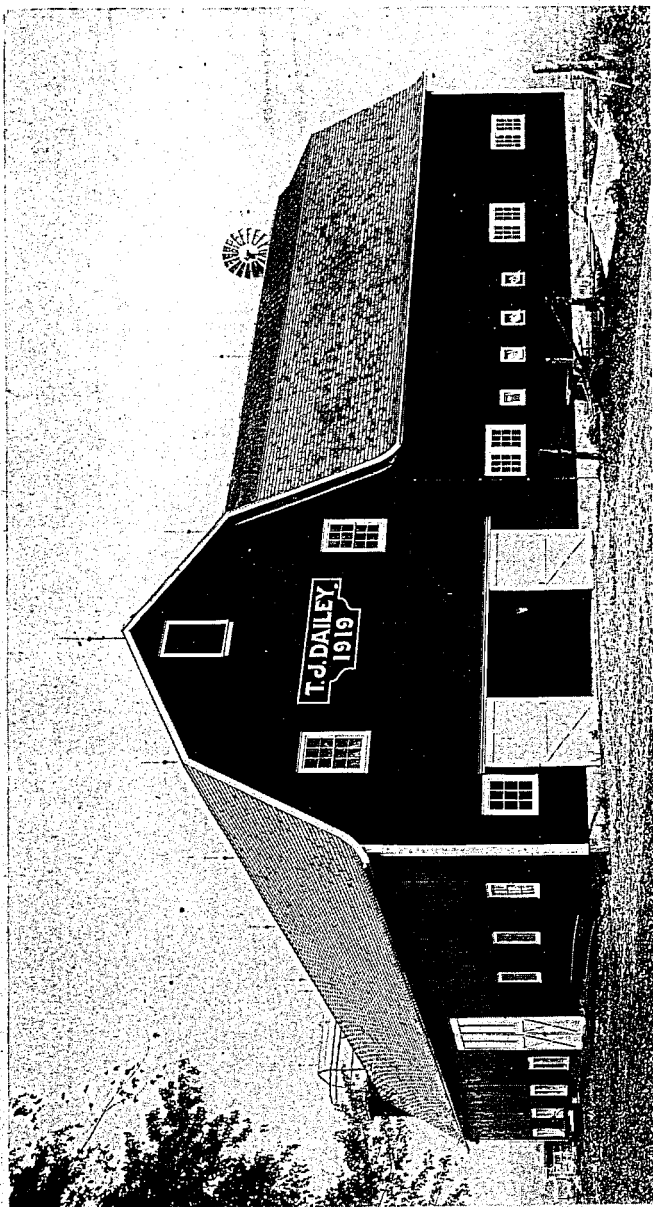
PROPERTY OWNERS "SHIELD" OF PROTECTION.

The ST. LOUIS LIGHTNING ROD COMPANY is proud of "KRETZER" Brand ROD. Into its manufacture we put the best materials that money can buy—the best of workmanship—the best thought and study of which we are capable. WE STAND firmly back of every installation—Our GOODS—and Our Dealer's WORK-MANSHIP! We furnish six (6) Copper Shields (like illustration) with each one thousand feet of rod. We desire that you fasten one of these shields alongside of the most prominent ground rod on each installation (on the level of the eye). In ADDITION to being a badge of honor—it is good ADVERTISING. Kindly use them!



TYPICAL INSTALLATIONS

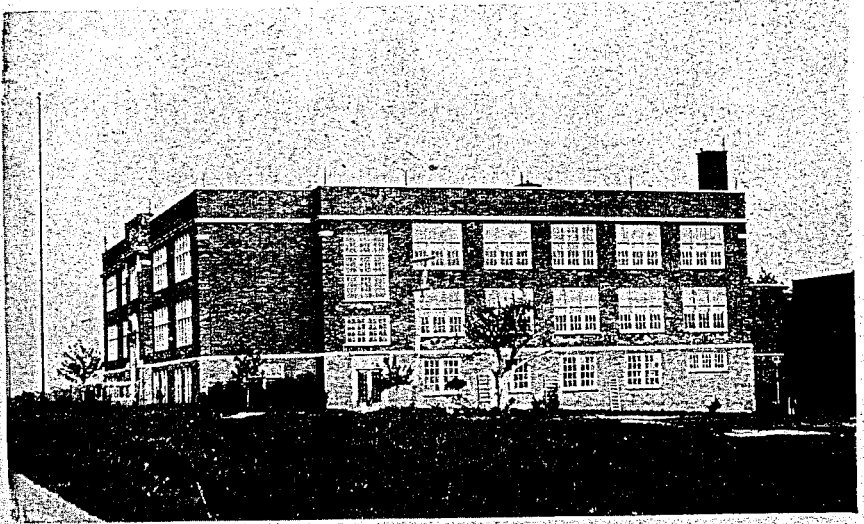
A Fine Barn



BARN OF T. J. DAILEY 3 MILES FROM BATAVIA, N. Y.

TYPICAL INSTALLATIONS

A HIGH SCHOOL



CLAYTON HIGH SCHOOL, CLAYTON, MO.

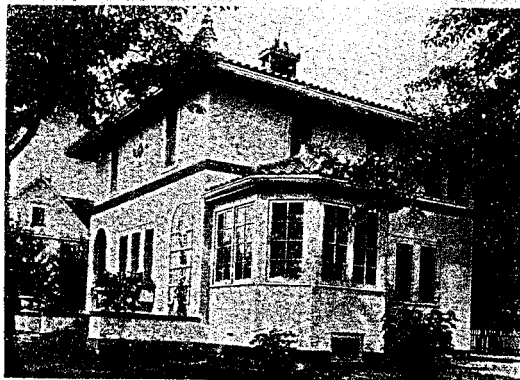
TYPICAL INSTALLATIONS

FINE HOMES



Country Home

M. D. JOYCE, GLENCOE, MO.

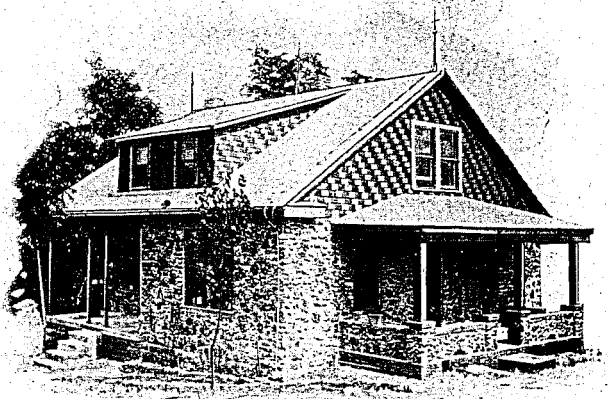


City Home

J. E. ANDERSON, NEW YORK CITY

A TYPICAL INSTALLATION—THIS ROD SYSTEM IS HARDLY VISIBLE

TYPICAL INSTALLATIONS



HOME OF F. H. ORTMAYER, OSAGE CITY, MO.

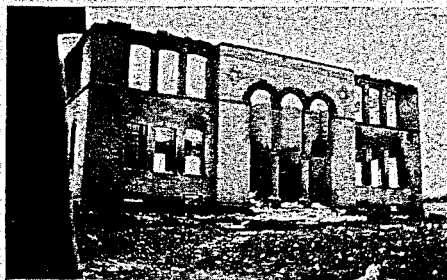


Suburban Home

R. L. BILLINGSLEY, PHILADELPHIA, PA.

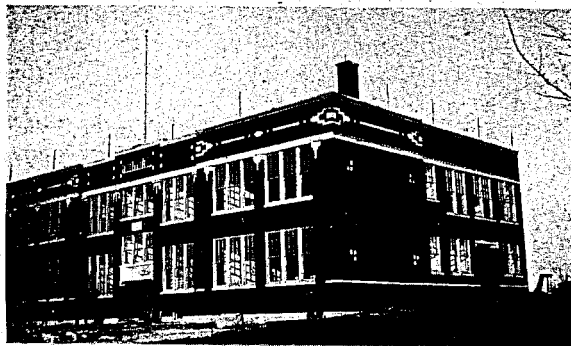
Architectural Beauty *Plus* Lightning Protection

TYPICAL INSTALLATIONS



RUINS—NOT RODDED

The above photo shows the ruins of a fine white-brick school house destroyed by lightning at Beaver Creek, Rock County, Minnesota. it was not rodded. A new brick school costing \$69,000, (see photo below) has been built where the old formerly stood, but it has a complete system of KRETZER Lightning Rods installed. Moral: An ounce of protection is worth a ton of regrets.

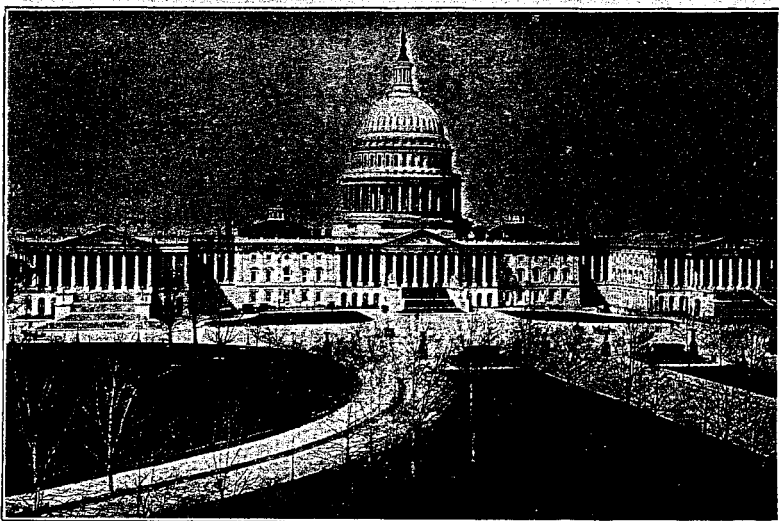


NEW SCHOOL—RODDER

GOVERNMENT INSTALLATIONS

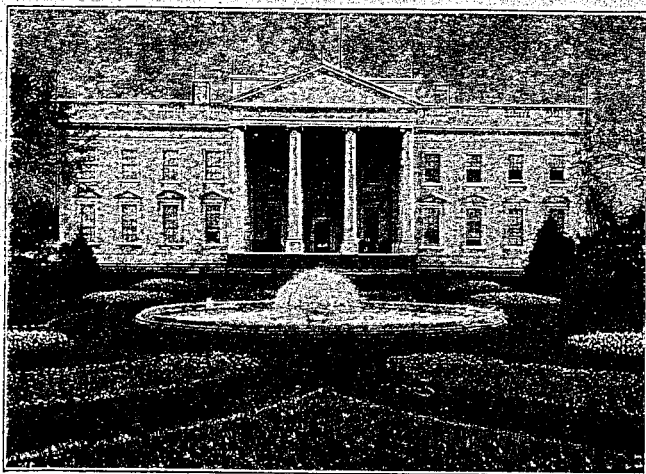
THE CAPITOL

WASHINGTON, D. C.



Our National Capitol Building at Washington, D. C., is protected by a complete system of lightning rods. During the past fifteen years the Goddess of Liberty, standing on the dome of the Capitol, has been struck by lightning over 100 times. The crown of the Goddess is a series of lightning rod points.

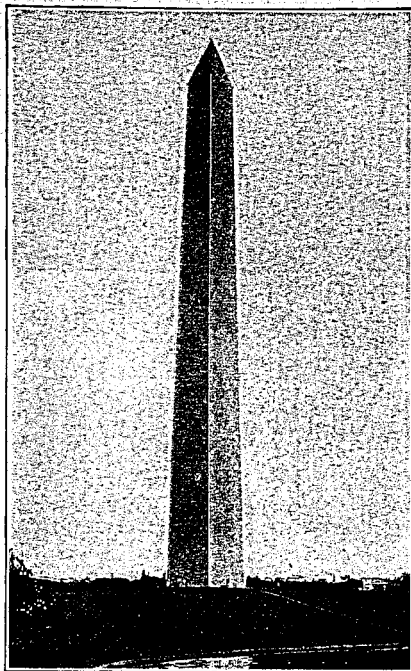
GOVERNMENT INSTALLATIONS



The White House, Washington, D. C.

The White House, Washington, D. C. is completely rodded.

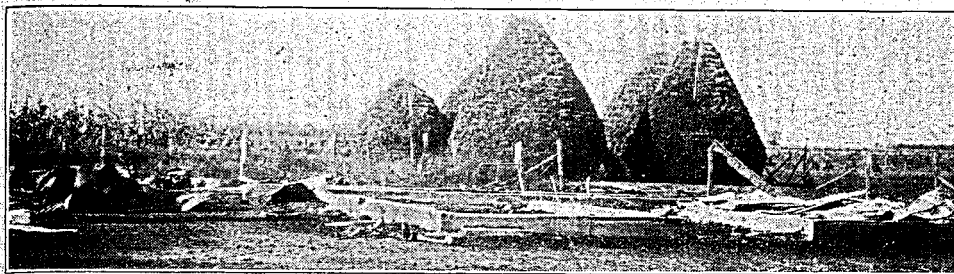
When the United States Government deems it necessary to protect the "first home in the land," and it's occupants, against the dangers of lightning, can anyone truly doubt the efficiency of a good system of lightning rods?



The Washington Monument
Washington, D. C.

The Washington Monument is protected by a special system of lightning rods. The metal apex of the monument is provided with numerous points and is electrically connected with the earth through the steel columns that support the stairways and elevators—the entire system being thoroughly grounded.

TYPICAL SCENES OF LIGHTNING RUINS



This occurs about 1,500 times in the U. S. each year.

This is the ruins of the barn of Charles Swartz, near Dieterich, Ills., which was destroyed by Lightning. In addition to the barn itself, one Ford Automobile, 8 tons of hay and a number of farm implements were also destroyed. Note the remains of the metal roof—which failed to give any measure of protection. A small investment in rods would have saved this barn.

TYPICAL SCENES

OF LIGHTNING RUINS



Another Economic Disaster

Three horses were killed when Lightning destroyed the large barn of Henry Roettger, near Josephville, Mo. Several hundred bushels of seed wheat in the barn, a quantity of hay and other contents were also destroyed and the total loss was estimated at more than \$2,000.

TYPICAL SCENES

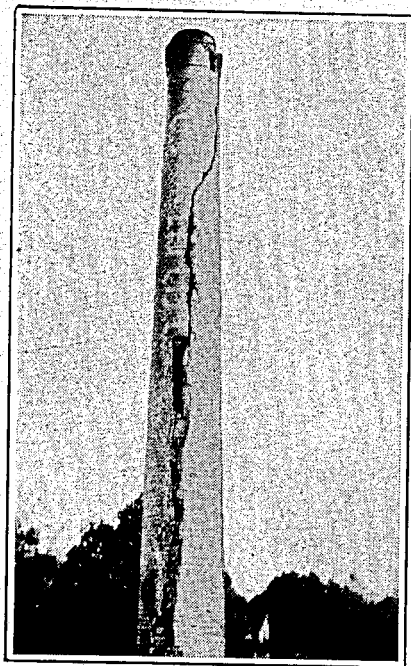
OF LIGHTNING RUINS



Another Example of the Un-rodged Building

This large barn and contents, property of William Schroeder near St. Charles, Mo., was destroyed by Lightning. The barn contained a large quantity of hay and other feed stuff. The loss was estimated at \$3,000. This barn had a metal or tin covering for which protective value has been claimed by metal roof manufacturers. A good system of Lightning Rods would have saved this barn.

WHEN LIGHTNING STRIKES A STACK



This is a picture of the chimney of a mandolin and guitar factory at Kalamazoo, Michigan. The bolt struck the top of the chimney, the current traveling almost half way round the stack, tearing the chimney to pieces. In fact, the lightning hurled great chunks of it around the community—some as far as 300 feet. Lightning is not a gentle playmate—it is too rough.

GENERAL INSTRUCTIONS GOVERNING THE INSTALLATION OF

KRETZER BRAND ROD

Note: Bear in mind that the object of installing a system of lightning rods is not only for the protection of property, but for the protection of human life as well; therefore, the greatest care must be exercised so that no detail of the installation work is slighted in any way. The ST. LOUIS LIGHTNING ROD COMPANY fully guarantees its "KRETZER" Brand products. Every installation of our goods is subject to our inspection and if such inspection brings to light any defects in an installation made by any dealer such defects must be immediately corrected, or the necessary corrections will be made by us at the dealer's expense.

1. All prominent parts, such as spires, cupolas, observatories, ventilators, chimneys and gables, must each be protected by an air terminal and point.

2. After such prominent parts of the structure are secured, surfaces of plain roof must be protected according to the rule: That no two points shall stand more than 25 feet apart.—No point must be placed more than 4 feet in from a ridge end.

3. The points and point rods must all be united by the connecting or circuit rod.

4. Each system of rod must be thoroughly grounded, according to the rule: That there shall never be less than two rods to the ground on any building, and never more than six points to two ground rods on any system of rods. At least three ground rods must be provided where more than six points are required. The number and location of grounds depends upon size of building, conditions of earth and location of air terminals. In general the main rods should be grounded at widely separated positions and preferably at diagonally opposite corners of the structure. The course of a rod from the point to ground should be horizontal or downward (not upward), hence, the occasional needed grounding to relieve a low positioned point. The following general rule with reference to size of building will apply; Straight ridged line buildings 75 feet in length with sloping roof require 2 grounds. Same type of building over 75 feet to 110 feet in length require 3 grounds. Each additional 50 feet of length or fraction thereof requires 1 additional ground. Side or cross ridge roof buildings or with projections such as cupolas, ventilators, house chimneys, dormers, etc. will need such added groundings as may be necessary to relieve low positioned points or to avoid branch lead of not over 16 feet. No point should be more than 40 feet (horizontal line) from the grounding. Extra wide buildings may need added groundings.

Each ground rod must have a contact with the earth at a sufficient depth where there is such a degree of permanent moisture as to facilitate the flow of electrical currents in the earth and bring the rods into contact with them. To terminate a rod in a few feet of dry, non-conducting earth, so limits its capacity as to greatly interfere with, if not totally destroy its protecting power. The perfect protecting power of a circuit conductor is due largely to its ground rods.

If the proper degree of moisture is not found at the point where a grounding should be made, it will be necessary to trench out possibly fifteen feet and an effort made to get as deep a grounding as possible at that point. Keep ground rods as far away as possible from doorways and porches. Where ground rods are liable to mechanical injury, for example, where they are brought down in a barn-yard and stock are liable to rub against them, be sure to box them in or protect them in some way against injury—never ground a lightning rod where manure is piled. See to it that clothes lines or other metal wires that may run to or from the building are well grounded before they enter the building.

5. No lightning rod can be relied upon as securing perfect protection, unless erected in circuit form passing over or around the top of the structure—as its form may require—having the ends of the circuit rod properly terminated in the earth.

6. Where air terminals can be firmly attached to chimneys, they must be so installed and extend at least 10' above the top. All other air terminals must be supported in a permanent and substantial manner by standard braces firmly attached to the rodded structure. It must be borne in mind that the air terminals of the lightning rod system are subject to greater strain than any other part of the system, on account of the strain and pressure of the wind. This is especially true in cases where ornaments are used.

7. Do not be in a hurry. Secure the rod firmly to the building and take time to do every part in a thorough manner.

8. See to it that the rod is coursed in as straight a line as possible and that abrupt turns or bends are avoided. Whenever it is necessary to make a bend in a rod see to it that the radius of the bend is in excess of five inches. Be sure to see to it that the braces are firmly attached to the roof, and that the air terminals stand straight.

9. Connections: It is of the greatest importance that all connections be made in a substantial manner. See that they are tight, and will stay that way, and that a good electrical contact is provided in every case.

10. Silos: Rod a silo in the same manner as any other building. If it stands alone, rod it in circuit form with two ground rods, and one air terminal will as a rule be sufficient. If the silo is built against the barn, the air terminal on the silo can as a rule be connected to the ground rod of the barn system, brought down to earth at a convenient place and only one additional ground rod is required. Open top silos require points spaced around top—not over 25 ft. apart connected by Band Rod.

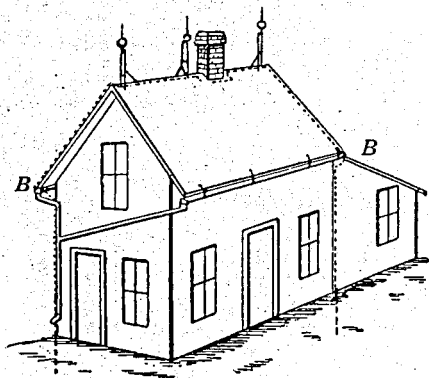
11. Buildings with metal roofs must be protected with a complete system in the same manner as is required for buildings with wooden roofs.

12. Metal Ventilators, Smoke Stacks, Vent Pipes, or other metallic objects, projecting **above** the rodded structure, must be connected to the rod system and thus made to serve as additional air terminals.

13. Exterior metals of extended form, in general within six feet of lightning rod, to be connected to rod by substantial bonding. Internal metals and metals of extended form running parallel to the rod for a considerable distance, say eight feet, to be connected to rod by substantial bonding.

Metal stanchions or other metallic parts that are liable to contact with live stock are not to be connected to the conductor, but should be independently grounded.

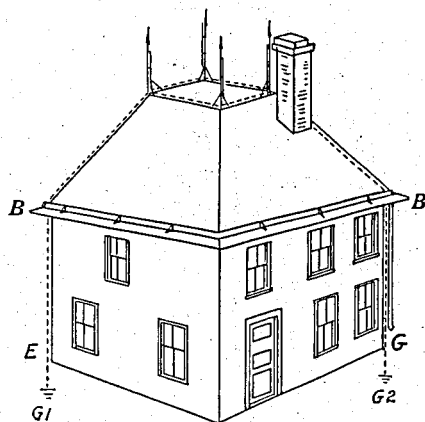
GENERAL TYPES OF BUILDINGS AND HOW TO ROD THEM



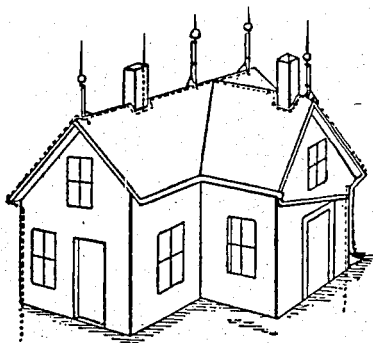
No. 1

This house is a small farm house and very easily rodded. The dotted lines indicate the proper position of the lightning rod. There are three air terminals on this house, one on each gable and one in the center near the chimney, which is the most prominent part of this building. See that goose-neck bends (over 5-in. radius) are made at points marked "B-B". Note that one ground rod enters the earth where the rain spout discharges and where there is likely to be the most moisture in the earth.

This house is of a different type and is very common in the rural districts. Round bends being made at points marked "B-B". Note: It will be observed that in this case, an extra point upon the chimney is not necessary.



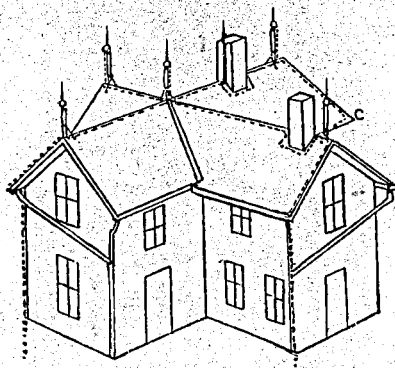
No. 2



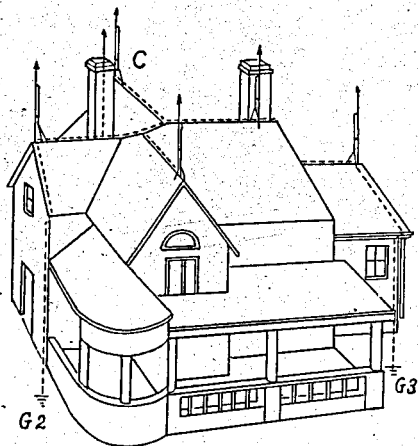
No. 3

In this case the chimneys are more liable to be struck than any other part of the house. In this house the safest place is in the center of the room away from the screen doors and corners. By following the dotted lines and using five points, as shown in the cut, this house may be made entirely safe.

This building is in the same class as No. 3, but having one more gable. This house should have six points placed as shown. A third rod to the ground should be run down at place marked "C".



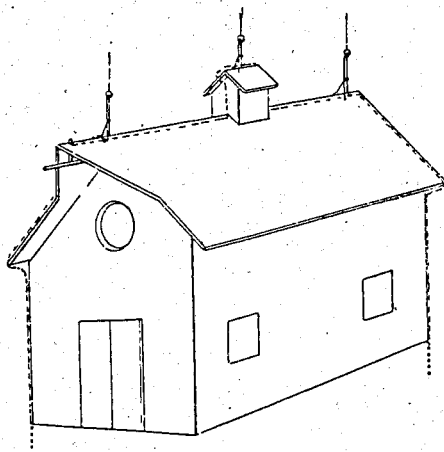
No. 4



No. 5

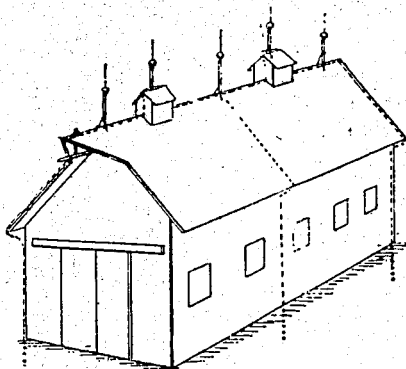
To properly rod this house not less than three ground rods should be used. The dotted lines shown will give a general idea of how this house should be rodded. This house should have one of the ground rods terminate from the place marked "C".

The rodding of a barn of this type is very simple. The dotted lines indicate the proper position of the rod. If the barn is not over twenty-five feet long and has no cupola, only two points, one placed near each end, are necessary.



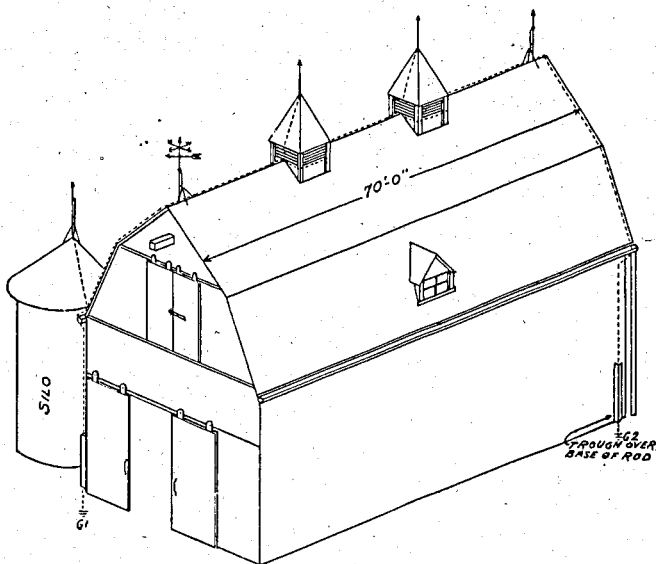
No. 6

BARNs



No. 7

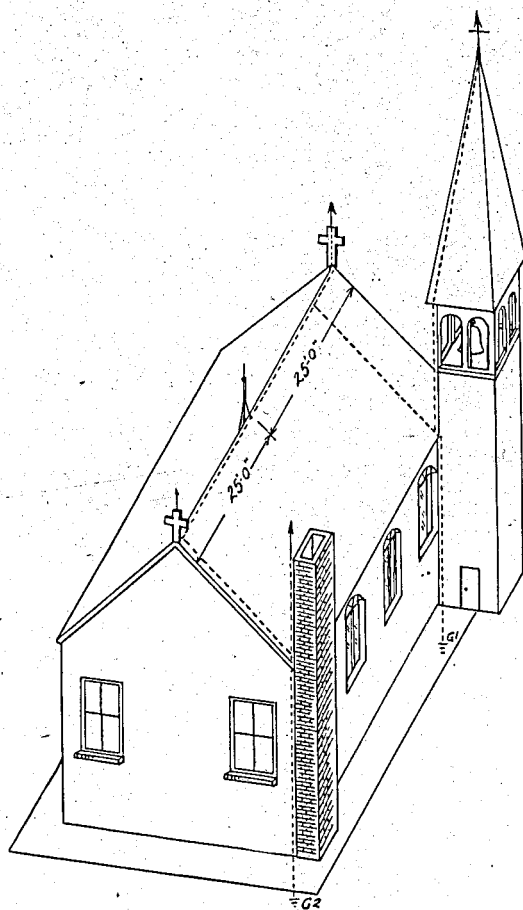
This is a larger barn with two cupolas and the same remarks in regard to No. 6 will apply in this case. This barn should have at least five points and three ground rods.



No. 8

Figure 8 shows a standard method of rodding barns and silos. Note that each ventilator is provided with an air terminal. Where it is desired, the roof conductor may be carried around the bases of the ventilators instead of over the tops of them, and the air terminals attached by means of standard T-connectors. The point for the protection of the silo is earthed at G-1 through one of the ground rods of the barn.

CHURCHES



No. 9

Note that in Figure 9 two rods to earth are on the same side of the building. This arrangement provides the best protection for chimney and steeple. The ground rod for the steeple is located away from the front of the church, where it will not be unsightly nor in any danger of being disturbed in any manner.

GRAIN ELEVATORS

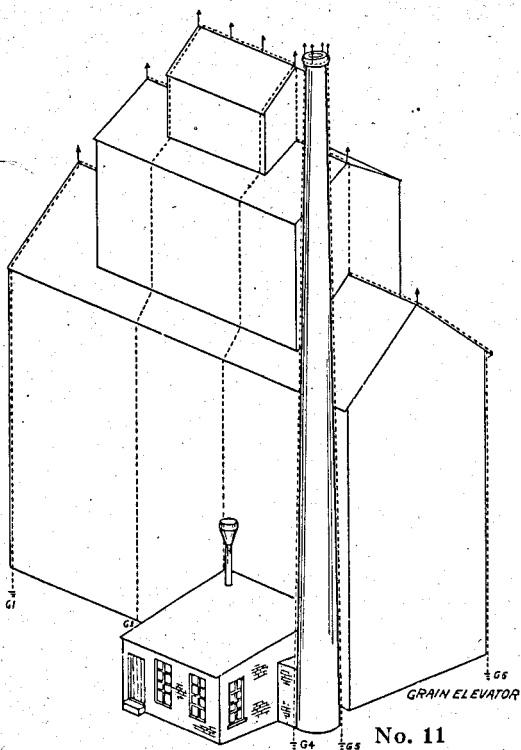
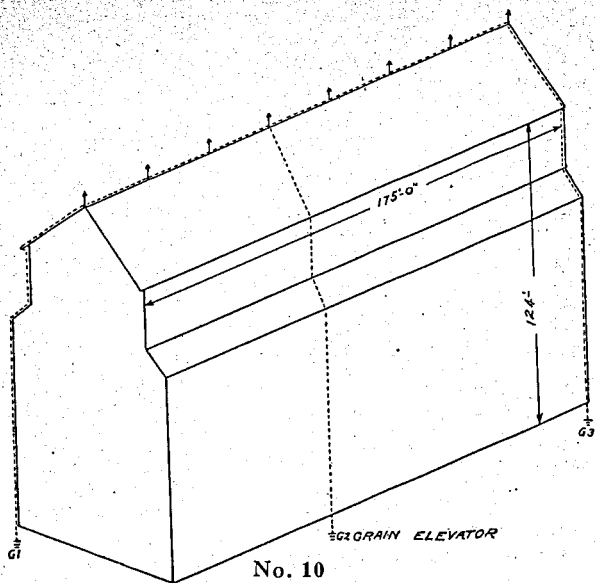
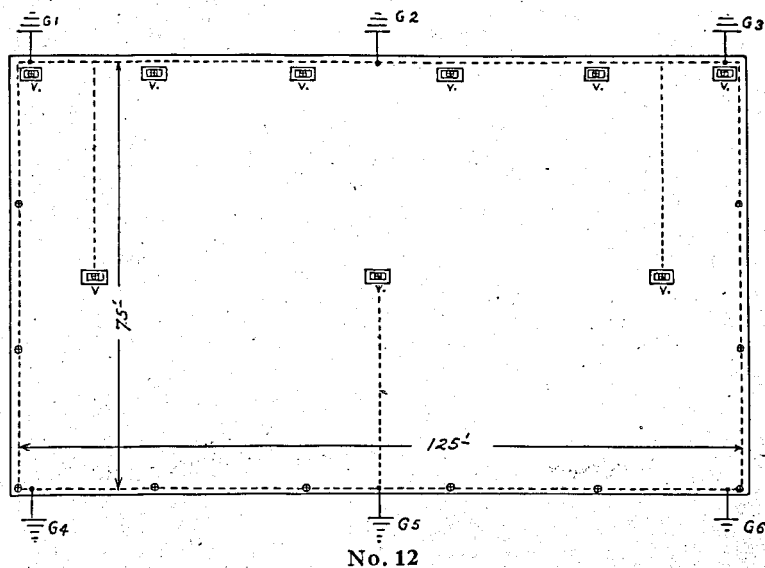


Figure 10 is a simple type of grain elevator, the rodding of which involves no complications and may be readily understood from the figure. The job shown in Figure 11 is somewhat complex, but the course of the rods can be followed without difficulty.

ICE HOUSES



Because of the presence of large quantities of vapor, unrodded ice houses seem especially liable to be struck by lightning. In the rodding of such structures care should be taken to provide points in ample numbers on all projecting parts and in places where moisture-laden air escapes from the building. A common type of ice house consists of a low building covering a large ground area and having its roof supplied with rather numerous ventilators. Figure 12 is a plan of view of the roof of an ice house. This roof is nearly flat. The ventilators in the roof are marked "V" in Figure 12. In this figure air terminal locations are designated by a circle and cross thus (+); the grounds are marked "G". Note that each ventilator is protected with a point, and that along the ends and one side of the building points are installed every 25 feet. It happens that along the other edge of the roof the ventilators are just 25 feet apart. If they were more than 25 feet apart additional points between the ventilators ought to be provided. The installation illustrated is fairly typical of ice house protection.

IMPORTANT

Structures of exceptional shape or design will sometimes be encountered. It will also happen that the dealer will occasionally be called upon to rod certain buildings that present a special problem on account of the character of material used in their construction. Our Special Service Department is prepared to advise fully as to the correct handling of any problems that may arise.

SPECIAL NOTICE

IN this catalogue we illustrate every article that constitutes a part of our regular stock. Where we have several sizes of the same article to be used on different sizes of Rod, we illustrate the article and name it, then we number each separate size and describe it. **Great care** should be taken in ordering to specify correctly by numbers. We recommend that the Trade follow the suggestions for ordering printed on next page.

We pack our goods as they are usually put up by all regular manufacturers. It will be a convenience to us and your goods will reach you in more perfect condition if you order in regular lots as put up.

Star Lightning Rods are packed in crates and boxes containing 500 feet.

Cable Lightning Rods are put up on reels containing 500 or 1000 feet.

Braces are put up in crates containing one or two dozen.

Balls are put up in boxes containing one dozen.

Points are put up in boxes containing one dozen.

Glass Tail Arrows are put up in boxes containing two.

Metal Tail Arrows are put up in boxes containing three.

23-inch Vanes are put up in boxes containing two.

33-inch Vanes are put up in boxes containing two.

33-inch Wire Arrows are put up in boxes containing three.

Points of Compass are put up in boxes containing one.

SUGGESTIONS FOR ORDERING

IN making your order, do so on a separate sheet and do not embody an order in a letter. Remember that we make a large variety of fixtures, and that we trim Rod with either Insulation or Non-Insulation fixtures. The usual fixtures for 1000 feet of Rod consist of 24 Points, 200 porcelain attachments, 200 fasteners, 24 Connectors and 12 assorted couplings for Insulation outfit. When Non-Insulation outfit is desired, we send the same quantity of fixtures as above, but substitute 200 Non-Insulation Attachments in place of the Insulators and Attachments. In addition to above, 1000 feet of Rod will usually require 2 dozen Braces, 2 dozen Balls, 4 Arrows and 2 Animal Vanes.

Avoid telegraphic orders; our central location will bring mail to us in one or two days.

Always give full and explicit shipping directions and where the Bill and notice of shipment shall be mailed to you. Give in detail the quantity, size and kind of Rod desired, the quantity and kind of fixtures wanted, such as Points, porcelain attachments, fasteners, Connectors and Couplings; state style of Braces desired, and whether Insulation or Non-Insulation. Specify number of and color of balls, size of arrows and whether glass or metal tail. **Always refer to our catalogue numbers**, state brand and be careful to specify correctly. A little care in ordering will prevent mistakes in shipments. We have printed forms for ordering which we furnish to our customers that simplify the matter of making a detailed order.