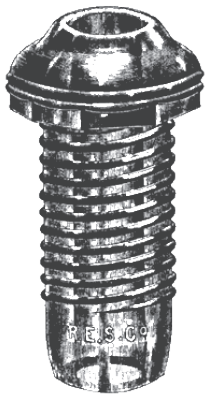


For Part 4 of "Odds & Dead-Ends," we're going to delve into yet another category of less-explored Hemingray glass insulators: **floor tubes** (also called floor insulators, wall tubes or window tubes.)

These insulators served a straightforward purpose: insulate a wire as it passed through a building, whether that be a floor, wall, window frame or other partition. I consider floor tubes to be a subcategory of bushing (see Part 3 in the December 2021 issue of Drip Points), as they served essentially the same purpose. As such, I have included them in my temporary "BT" (Bushing & Tube) numbering system as we continue to learn more about these interesting insulators.

When were floor tubes invented?

While it is unknown exactly when the first floor tube insulators came into existence, references to rubber and porcelain tubes have been found from 1888: "An extra heavy insulating material, such as rubber hose or hard rubber or porcelain tube... must be put over the wires where they pass through walls or partitions."¹



1890 ILLUSTRATION PICTURING A GLASS FLOOR TUBE EMBOSSED "R.E.S.CO."

Threaded glass floor tubes began appearing a couple years later—a January 1890 article from Electrical Industries pictured a floor tube offered by Shay, Stephens & Co. of Chicago: "No. 13 is a floor insulator, and is used extensively for running heavy wires through floors and window frames."² (Hemingray manufactured insulators for Shay, Stephens & Co., embossed "S.S. & Co.")

Another article dated March 22, 1890 in Electrical World announced "a new safety floor insulator which has been recently brought out and placed upon the market by the Royal Electrical Specialty Company, of this city. Its object is to take the place of hard rubber tubing for carrying wire through floor partitions. The insulator is of a fine quality of glass and has received the approval of the New York Board of Fire Underwriters. They are made in various sizes, ranging from three to six inches in length and are being extensively used by a large number of the electric light and motor companies throughout the country. They have also been employed quite largely as window tubes for the reception of heavy electric light wires, and have given good results in all their various applications. The latest form is made hexagonal to the extreme top of the head for convenience in insertion."³ The illustration used was the same one pictured in the Shay, Stephens & Co. article, but the "R.E.S.Co." embossing has been added.

Meanwhile, an article from July 13, 1892 claims that a new porcelain window tube design "require[s] a much smaller hole than the ordinary glass floor insulator now generally used..."⁴ This statement would imply that glass floor tubes were well established by this point.

Who made glass floor tubes?

Who made glass floor tubes?

Based on 1902-1920 catalog illustrations bearing the Hemingray name, and dimensions matching earlier 1890s catalogs, Hemingray was clearly the dominant manufacturer of glass floor tubes.

Glass Floor Insulator.
ALSO USED AS WINDOW TUBES FOR HEAVY WIRES.

No. 344. 3 inches, 1/8, 3/4 or 1 inch bore..... each, \$0 07
" 345. 4 " 3/4 inch bore..... " 08

ABOVE: 1893 CATALOG, TAYLOR GOODHUE & AMES, CHICAGO – LISTS 4 DIFFERENT SIZES AVAILABLE. PHOTO CREDIT ELTON GISH.

WESTERN ELECTRIC COMPANY. 413

Floor Insulators.
Glass Floor Insulators.

Code Word.	List No.			List Price.
				Per 1000.
<i>Bernard</i>	3816	3 in. floor ins.,	1/2 in. bore, with thread	\$70.00
<i>Bertha</i>	3817	3 " "	1 " " "	70.00
<i>Bertram</i>	3818	3 " "	1 1/4 " " "	80.00
<i>Besech</i>	3819	3 1/2 " "	1 " " "	75.00
<i>Beseem</i>	3820	4 " "	3/4 " " "	80.00
<i>Besot</i>	3821	4 " "	1 " " "	80.00
<i>Besige</i>	3822	4 1/2 in. floor ins.,	1 in. bore, with thread	90.00
<i>Besiegement</i>	3823	5 " "	1 " " "	100.00
<i>Besieging</i>	3824	6 " "	1 " " "	120.00
<i>Besmoke</i>	3825	6 " "	1 1/4 " " "	140.00
<i>Besot</i>	3836	3 1/2 " "	3/4 " " no thread	75.00
<i>Bespeak</i>	3837	6 " "	1 " " split thread	200.00

Nos. 3816 to 3825.

No. 3836.

ABOVE: 1897 CATALOG, WESTERN ELECTRIC – LISTS 12 STYLES & SIZES.

RIGHT: 1902 CATALOG, THE GEO WORTHINGTON CO. – LISTS 10 DIFFERENT STYLES & SIZES. NOTE THAT THE ILLUSTRATION NOW HAS THE HEMINGRAY NAME ON IT. PHOTO CREDIT ELTON GISH.

GLASS FLOOR INSULATORS.
FIG. 357.

Used also as Window Tubes for Heavy Electric Wires.

	Price per 1000.
3 in. floor ins., 1/2 in. bore, with thread	\$ 70.00
3 " " 1 " " "	70.00
3 " " 1 1/4 " " "	80.00
3 1/2 " " 1 " " "	75.00
4 " " 3/4 " " "	80.00
4 " " 1 " " "	80.00
4 1/2 " " 1 " " "	90.00
5 " " 1 " " "	100.00
6 " " 1 " " "	120.00
6 " " 1 1/4 " " "	140.00

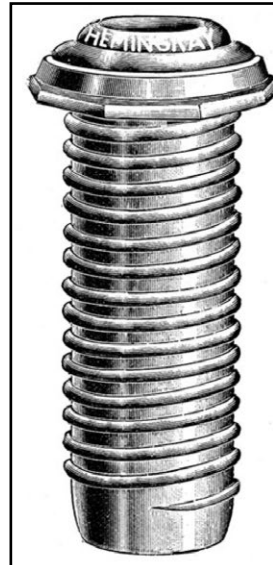
ODDS & DEAD-ENDS (PART 4)

HEMINGRAY FLOOR TUBE INSULATORS (CONTINUED)

Many specimens have been recovered from the Hemingray Dump also. That said, it's very possible that other glass companies manufactured glass floor tubes as well.

So far I am not aware of any floor tubes embossed "Hemingray", despite catalog drawings. (This was common practice with illustrations of Hemingray's insulators, and didn't always reflect the actual embossing.) However, there are at least 2 embossed floor tube designs currently known. See the More Research Necessary section near the end of this article.

RIGHT: 1904 CATALOG, THE W.E. NAGEL ELECTRIC COMPANY, TOLEDO, OHIO - LISTS 13 SIZES. PHOTO CREDIT ELTON GISH.



Glass Floor Insulators

Trade word	Length	Bore	List price each
Liebeswor	3 inches	1/4 inch, with screw	\$0.16
Liebevoll	3 inches	3/8 inch, with screw	.16
Lieblich	3 inches	1 inch, with screw	.16
Lieblinge	3 inches	1 1/4 inches, with screw	.20
Lieblös	3 1/2 inches	3/4 inch, without screw	.18
Liebsten	3 1/2 inches	1 inch, with screw	.18
Liebtraut	4 inches	3/8 inch, with screw	.22
Liedchen	4 inches	1 inch, with screw	.22
Liefde	4 1/2 inches	1 inch, with screw	.22
Liefdebau	5 inches	1 inch, with screw	.28
Liefdelos	6 inches	1 inch, with screw	.30
Lieflokke	6 inches	1 1/4 inches, with screw	.30
Liefloogen	6 inches	1 inch, split	.40

The 6-inch split insulators are in two pieces. These pieces are tongued and grooved, and fit together closely.

FLOOR INSULATORS

Trade No.	Mfrs. No.	Length Inches	Bore Inches	Style	Price per 1000
036441	120	2 1/2	3/4	Screw	\$78.00
036442	121	3	1/2	Screw	83.50
036443	122	3	1	Screw	83.50
036444	123	3	1 1/4	Screw	100.00
036445	124	3 1/2	3/4	Plain	94.50
067161	125	3 1/2	1	Screw	94.50
036446	126	4	3/4	Screw	117.00
036447	127	4	1	Screw	117.00
036448	128	4 1/2	1	Screw	122.00
036449	129	5	1	Screw	140.00
036450	130	6	1	Screw	161.00
036451	131	6	1 1/4	Screw	172.00
83866	132	6	1	Split plain	228.00

The 6-inch split insulators are in two pieces, tongued and grooved, and fit together closely.

ABOVE: 1919 CATALOG, ELECTRIC APPLIANCE COMPANY, CHICAGO - LISTS 13 SIZES.

BELOW: 1920 CATALOG, WESTERN ELECTRIC - LISTS 11 SIZES. NOTE NO.120 AND NO.124 ARE NO LONGER LISTED. PHOTO CREDITS ELTON GISH.

No. 90

No. 91

Floor Tube

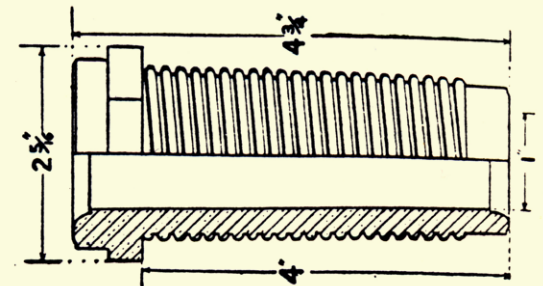
SPAN WIRE INSULATORS							
List No.	Description	Crushing Strength	Diam. Groove	Weight Each	Wt. per 1000 Packed	Std. Pkg. Quantity	W. E. List Price Each
90	Span wire (Old No. 10)	4912 lbs.	3/8 in.	11 ozs.	700 lbs.	500	\$0.46
91	Span wire (Old No. 15)	5910 lbs.	1/2 in.	17 1/2 ozs.	1260 lbs.	250	.69

FLOOR TUBES									
List No.	Length Inches	Bore Inches	Description	W. E. List Price Each	List No.	Length Inches	Bore Inches	Description	W. E. List Price Each
121	3	1/2	With screw	\$0.16	128	4 1/2	1	With screw	\$0.22
122	3	1	With screw	.16	129	5	1	With screw	.28
123	3	1 1/4	With screw	.20	130	6	1	With screw	.30
125	3 1/2	1	With screw	.18	131	6	1 1/4	With screw	.30
126	4	3/4	With screw	.22	132	6	1	Split plain	.40
127	4	1	With screw	.22					

Measuring Floor Tube Insulators

It is important to note that floor tubes were measured in a very specific way:

- **Length** - The length of the tube that extends through the floor or wall (excludes the head). In the illustration below, the length is 4".
- **Bore Size** - The inner hole diameter, measured at the small end. In the illustration below, the bore size is 1". Note that most floor tube bores are tapered, so they are slightly larger at the "head" of the tube.



References

- 1 <https://reference.insulators.info/publications/view/?id=8828>
- 2 <https://reference.insulators.info/publications/view/?id=5417>
- 3 <https://reference.insulators.info/publications/view/?id=7717>
- 4 <https://reference.insulators.info/publications/view/?id=4777>

ODDS & DEAD-ENDS (PART 4)

HEMINGRAY FLOOR TUBE INSULATORS (CONTINUED)

Glass Floor Tube Styles

As evidenced on the previous pages, the sizes offered initially started off small in the early 1890s, but quickly expanded by the late 1890s and 1900s. It appears the most sizes ever offered at one time was 13, but based on reviewing the tube dimensions across all catalogs, we know that Hemingray manufactured floor tubes in at least 14 distinct sizes/styles, as listed in the table below. One tube size offered between 1893-1904 (BT 2121.5) was seemingly discontinued before they assigned style numbers, which ranged from No. 120 through No. 132.

Hemingray produced three distinct styles of tubes, described in various ways in different catalogs:

- **With Thread / Screw** – This was the most common style. Similar to a metal screw, it had outer threads to screw into wood, and the head would have a hex (6-sided) or oct (8-sided) head.
- **No Thread / Without Screw / Plain** – This was a less common style, but at least one style produced by Hemingray (No.124) did not have any threading. See photo at right.
- **Split-Thread / Split-Plain / Split** – This was a unique design consisting of two halves of glass, "tongued and grooved" to fit together around an existing wire. I would guess these were designed as a replacement for an existing line installation where the either a previous tube had broken and/or rerunning the line was not practical. This style was only used for No.132 (see page 27).



BT 2120
NO. 120 FLOOR TUBE
STEPPED OCT HEAD



BT 2124
NO. 124 FLOOR TUBE
STEPPED ROUND HEAD

BT #	Hemingray Catalog Style #	Length	Bore	Type	First Year Appeared in Catalogs (Approximate)	Last Year Appeared in Catalogs (Approximate)
BT 2120	120	2 ½"	¾"	Screw	c.1915	1919
BT 2121	121	3"	½"	Screw	1893	1920
BT 2121.5	n/a	3"	¾"	Screw	1893	1904
BT 2122	122	3"	1"	Screw	1893	1920
BT 2123	123	3"	1 ¼"	Screw	1897	1920
BT 2124	124	3 ½"	¾"	Without Screw	1897	1919
BT 2125	125	3 ½"	1"	Screw	1897	1920
BT 2126	126	4"	¾"	Screw	1893	1920
BT 2127	127	4"	1"	Screw	1897	1920
BT 2128	128	4 ½"	1"	Screw	1897	1920
BT 2129	129	5"	1"	Screw	1897	1920
BT 2130	130	6"	1"	Screw	1897	1920
BT 2131	131	6"	1 ¼"	Screw	1897	1920
BT 2132	132	6"	1"	Split Plain	1897	1920

ODDS & DEAD-ENDS (PART 4)

HEMINGRAY FLOOR TUBE INSULATORS (CONTINUED)

Head Design Variations

As you can see from the various specimens pictured throughout the article, the "heads" of the floor tubes came in several different designs, which I have broken out into the following:

- **Stepped Oct Head** – The oct, or 8-sided, heads appeared to have been used exclusively on the smallest bore sizes. I have yet to find a large bore floor tube with an 8-sided head. Variations exist with 2 steps (such as the No. 120 on the previous page) or 3 steps (such as the No. 121 to the right).
- **Stepped Hex Head** – The hex, or 6-sided, heads appeared to have been used exclusively on the larger bore sizes. Similarly, I have yet to find a small bore (<math>< \frac{3}{4}</math>") floor tube with a 6-sided head. So far the only style I have found with a Stepped Hex Head is the earlier No. 122 (below, right).
- **Stepped Round Head** – This head style was only used on the unthreaded No. 124 and the 2-piece "split" No. 132.
- **Modern Hex Head** – Based on catalog drawings, the modern hex head appears to have been the last head design made by Hemingray and replaced the earlier Stepped Hex Head design. Unlike the other heads, this head has no steps but rather a single, curved and ringed opening in front of the hex facets behind it.

Below, you can see an example of the same No. 122 floor tube in both the earlier Stepped Hex Head and later Modern Hex Head designs.



BT 2121
NO. 121 FLOOR TUBE
STEPPED OCT HEAD



BT 2126
NO. 126 FLOOR TUBE
MODERN HEX HEAD



BT 2122
NO. 122 FLOOR TUBE
MODERN HEX HEAD



BT 2122
NO. 122 FLOOR TUBE
STEPPED HEX HEAD

ODDS & DEAD-ENDS (PART 4)

HEMINGRAY FLOOR TUBE INSULATORS (CONTINUED)

Floor Tube Colors & Condition

The most common colors these come in are various shades of aqua, including light aqua, blue aqua, green aqua, and light green aqua. Less common colors include ice aqua, lime green, clear, off clear, gray and SCA (sun colored amethyst). So far I have not seen any in Hemingray Blue, but I'd be willing to bet there's at least one out there.

Condition-wise, considering these saw use both inside and outside buildings, it's understandable that these often saw rough service and therefore it is common for them to have some degree of damage on either end.



BT 2127
NO. 127 FLOOR TUBE
MODERN HEX HEAD



BT 2129
NO. 129 FLOOR TUBE
MODERN HEX HEAD



BT 2130
NO. 130 FLOOR TUBE
MODERN HEX HEAD



BT 2131
NO. 131 FLOOR TUBE
MODERN HEX HEAD

The No. 131 was the largest size floor tube made by Hemingray, measuring 6" long with a 1 1/4" bore.

ODDS & DEAD-ENDS (PART 4)

HEMINGRAY FLOOR TUBE INSULATORS (CONTINUED)



BT 2132
NO. 132 FLOOR TUBE
STEPPED ROUND HEAD

This is Hemingray's No. 132 "split plain" design. The insulator is in two halves, and has 3 interlocking tongues and grooves on each side, which prevented the pieces from shearing or separating once inserted into the floor or wall.



More Research Necessary

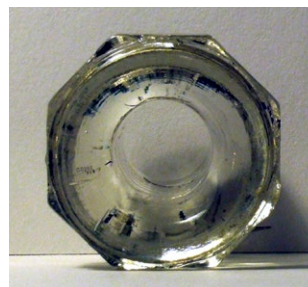
I know I always say this, but we've just scratched the surface of what's out there! Here are some additional glass floor tube designs that may or may not be Hemingray products, but absolutely deserve a mention. Do you have another design, color or embossing not mentioned in this article? I'd love to hear from you! Visit <https://hemingray.info/wanted> to see which designs I'm still looking for. ▲



This floor tube is embossed "THE E.S.G. & CO." It should be noted there is an identically embossed CD 1085 break knob spool which I suspect is a Hemingray product. Perhaps this floor tube was manufactured by Hemingray as well? Photos courtesy of Paul Greaves.



These are the smallest floor tubes I've seen to date. The two specimens below are clear in color, have an oct (8-sided) head, and measure 1" long with a 5/8" bore. Based on the head style, glass quality and dimensions, I doubt these are Hemingray products. The tube in the top two photos is unembossed. The tube in the bottom two photos is from the collection of James A. Lindsey, Sr. and appears to be embossed "Made In/ NO/"; the rest is illegible.



LEFT: These Oct Head SCA two-tone pieces clearly faced the outdoors; they came out of the ghost town of Bodie, CA over 60 years ago. The overall length is 5 3/4", and the bore size is 5/8". Photo courtesy of Dwayne Anthony.