

For Part 3 of "Odds & Dead-Ends," I'm going to be focusing on another less explored category of Hemingray insulators: glass bushings. So what exactly is a bushing? The term actually has two different meanings in the world of Hemingray insulators:

- 1) A metal piece embedded in the threads or bolt hole of an insulator to provide additional strength and help prevent pin expansion, a feature that Hemingray marketed in the 1930s and 1940s.
- 2) A glass insulator specially designed for the purpose of insulating and protecting a conductor passing through it.

For the purpose of this article, we'll be delving into the second definition—the glass variety of Hemingray bushings. While multiple glass companies manufactured bushings, it seems that Hemingray and Brookfield were the most prolific. Bushings attributed to Brookfield are often embossed with an "R" number, such as R 5050 (pictured on the left). In contrast, so far all of the known or suspected Hemingray bushings I've come across are unembossed.



BROOKFIELD R 5050

As glass bushings are not currently assigned CD numbers, for now I've created a placeholder "BT" (Bushing & Tube) numbering system to catalog all of the Hemingray bushing designs as I'm made aware of them. I'll be using them in this article, and you can also see them in use on Hemingray.info, my web site which is home to the Hemingray Glass Insulator Database.

Both the extensive research of Hemingray historian Bob Stahr and specimens unearthed from the Hemingray Dump (via Darin Cochran, Roger Lucas, and others) have been a great source of information for me on some of Hemingray's bushing designs.

In cases where no dump specimens have been found and no paperwork has surfaced, it can be difficult to identify a potential Hemingray product, and we must make a "best guess" based on the bushing's characteristics:

- *Glass quality* — clarity, junk, bubbles, amber or milk swirling, etc.
- *Mold characteristics* — edge sharpness, mold seams, features seen on other known Hemingray products, etc.
- *Color* — is the color within the typical Hemingray color range for the approximate time period?

That said, I'm sure there are many other Hemingray bushing designs out there just waiting to be discovered, and we have only scratched the surface! If you have a glass bushing you suspect is a Hemingray product and is not pictured in this article, I would be very interested in hearing from you.

And now, without further ado, let's explore the various categories of Hemingray glass bushings we do know about!

A Case of Mistaken Identity?

What I believe is the first & certainly the largest of the Hemingray bushings was once thought to be the sleeve for a CD 249 Hemingray No.0 Provo Type! This insulator was originally assigned CD 312. However, it was never proven that this was a glass sleeve, and so it eventually lost its CD number.

The piece was discovered in the dump by Hemingray employee Dennis Donovan in the 1960s, among a group of several other one-of-a-kind pieces. You can read more about this incredible find in Bill Meier's "The Greatest Insulator Find in the History of the Hobby" on Insulators.info.



BT 2009

PHOTO CREDIT CHRIS HEDGES



The photo on the left is from Ray Klingensmith's January 1989 catalog and shows the insulator as it was originally imagined. However, note that the fins/ribs are angled upward, which would seem to go against the goal of shedding water and moisture off of the insulator, if indeed it was intended to be used as a sleeve.

The piece measures 11" high and approximately 5 1/4" wide. The bore size is approximately 1 1/4" on the wide end and 2 1/4" on the narrow end.

ODDS & DEAD-ENDS (PART 3)

HEMINGRAY GLASS BUSHINGS (CONTINUED)



Dump Discoveries & Unknown Usage

Over the years, several different bushing designs have surfaced from the Hemingray Dump, through the painstaking efforts of several collectors including Darin Cochran, Roger Lucas and Bob Stahr, and others. This page is dedicated to all their hard work and perseverance!

On the left (BT 2001) is a light aqua bushing of unknown usage. A specimen with a ground end was dug from the Hemingray Dump by Roger Lucas in 2008, and there are at least 4 whole specimens known.

The specimens below (BT 2003) and on the right (BT 2005) are two other unknown usage bushings dug from the Hemingray dump. BT 2003 was dug by Roger Lucas.



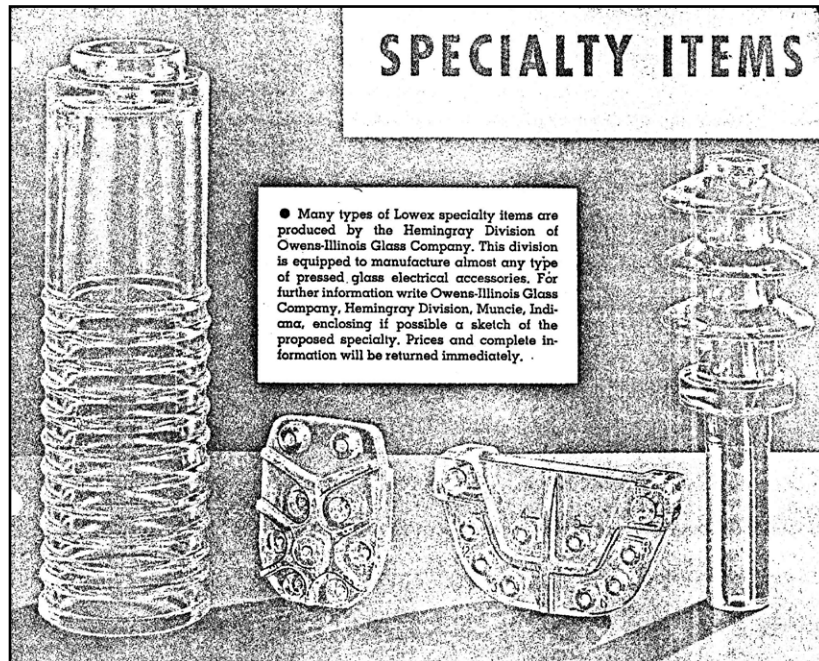
BT 2003 – PHOTO CREDIT ROGER LUCAS & DARIN COCHRAN



BT 2005

DIMENSIONS: 3 7/8" WIDE, 6 1/4" HIGH
BORE SIZE: 5/8" (TOP); 1 1/8" (BOTTOM)

BT 2001
DIMENSIONS: 2 1/4" WIDE, 4 1/2" HIGH
BORE SIZE: 1 1/4" (TOP); 1" (BOTTOM)
WEIGHT: 14 OZ.



● Many types of Lowex specialty items are produced by the Hemingray Division of Owens-Illinois Glass Company. This division is equipped to manufacture almost any type of pressed glass electrical accessories. For further information write Owens-Illinois Glass Company, Hemingray Division, Muncie, Indiana, enclosing if possible a sketch of the proposed specialty. Prices and complete information will be returned immediately.

BT 2006

BT 2007

Above is an undated (likely late 1930s or early 1940s) Hemingray catalog page displaying various Lowex specialty items, including two bushings. I am not aware of any specimens of these. Have you seen one?

BT 2005 (above) and BT 2002 (below, right) also have a unique feature in common—they both have "keyed" or "slotted" holes near the top, similar to the hole design of the CD 1025 mine insulator, also made by Hemingray around 30-40 years earlier.

BT 2004 (below, center) is similar in design to the Brookfield R 5088, the rightmost piece in the photo below.



BT 2004

PHOTO CREDIT BOB STAHR



BT 2002

DIMENSIONS: 2 1/8" WIDE, 2 5/8" HIGH
PHOTO CREDIT BRIAN RIECKER

ODDS & DEAD-ENDS (PART 3)

HEMINGRAY GLASS BUSHINGS (CONTINUED)



BT 2010

DIMENSIONS: 3 3/4" WIDE, 9" HIGH
BORE SIZE: 2 1/4" (AT WIDEST POINT)
WEIGHT: 64 OZ.

Hemingray "Three E" Telescoping Isolators

This next set of 3 bushings are in the same family as switch bushings, but I think they're unique enough to warrant their own section. Several years ago on eBay, I purchased the bushing on the left because something about it just looked Hemingray to me. I took it to the 2017 Colorado Springs National to show Bob Stahr and get his thoughts on it. He pulled out his laptop and showed me a Hemingray glass bushing advertisement—and there it was! See the ad below.

If you look carefully at the piece on the left, you can see there are actually two pieces fused together between the third and fourth rib up from the bottom. This was necessary to create the internal flange (see #92 in the patent drawing on the next page). The bottom hole is also unpunched, so it appears this specimen never saw service.

Now RUGGED INSULATION plus VISIBILITY THROUGH HEMINGRAY Glass BUSHINGS

ELECTRICAL ENGINEERS EQUIPMENT COMPANY ADDS VISUAL INSPECTION ECONOMY TO ITS TELESCOPING ISOLATORS...

● Modern electrical equipment designs show a definite trend toward the use of Hemingray glass bushings for many types of applications. Its transparency, great mechanical strength, and superior electrical insulating properties have proved a decided advantage. In the case of the "Three E" telescoping Isolator featured here, the position and the condition of the contacts are always visible to the operator at a glance. Hemingray glass bushings afford a decided improvement in product design.

The use of glass for equipment insulation requirements assures adequate mechanical and dielectric strength. Its use results in neatness in equipment, good appearance and durability. Submit your insulation problems—maybe we can save you money. Owens-Illinois Glass Company, Hemingray Division, Muncie, Indiana.

Manufacturers—investigate the possibilities of special Hemingray glass insulators for your equipment.

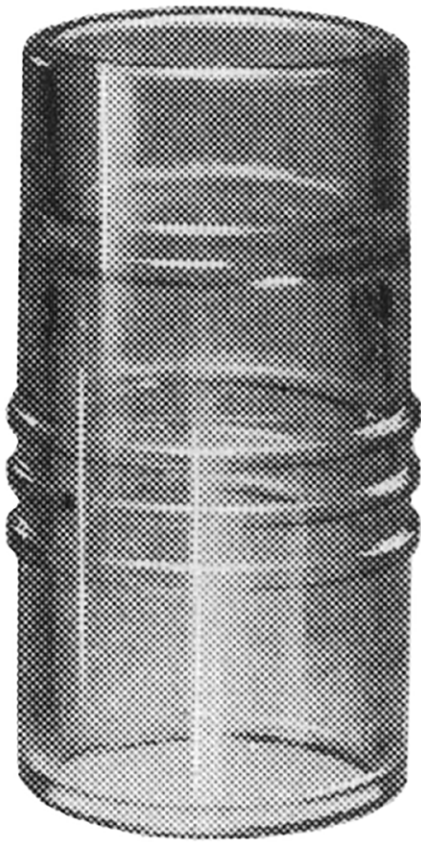
Central Stations—specify Hemingray Glass Insulators for the new equipment you intend purchasing—cut inspection costs.

FOR MODERN POWER LINE INSULATION

C.1940S HEMINGRAY GLASS BUSHING ADVERTISEMENT, COURTESY OF BOB STAHR

ODDS & DEAD-ENDS (PART 3)

HEMINGRAY GLASS BUSHINGS (CONTINUED)



BT 2011

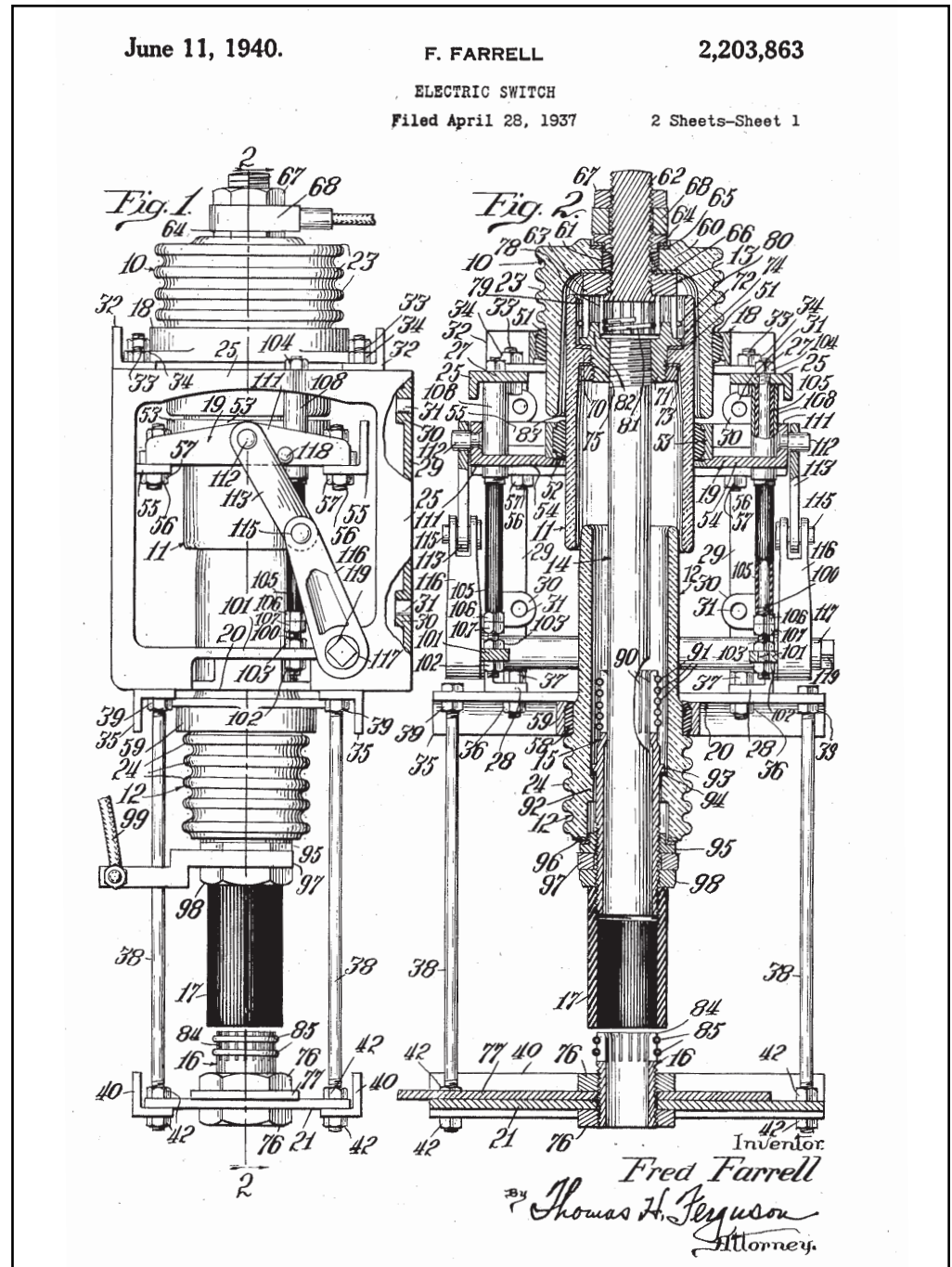
DIMENSIONS: 4 1/2" WIDE, 7 1/2" HIGH
(ESTIMATE ONLY)



BT 2012

DIMENSIONS: 6" WIDE, 6" HIGH
(ESTIMATE ONLY)

Bob also showed me the two patents granted to Fred Farrell for this electric switch assembly. The first patent (1,918,901) was granted on July 18, 1933, and the second patent (2,203,863) was granted on June 11, 1940, pictured below. The purpose of the design was to create a disconnect switch that was completely enclosed in telescoping glass bushings, which allowed for visual inspection of components and protection from weather. Bob reported that these were used in some ComEd electrical vaults in Chicago, Illinois. No other specimens have surfaced that I'm aware of, so keep an eye out! In my opinion, finding a complete assembly of these massive telescoping isolators would be the Holy Grail of Hemingray bushing finds. So cool!



Switch Bushings

Switch bushings were often used in turn-of-the-century powerhouses, substations, control rooms, etc. on switch panels. These panels were typically made of a material such as slate, granite or marble. The conductor would run through the center of the insulator, to the front of the panel. The switching assembly would bridge across two of these bushings, and by throwing the switch, one could connect/disconnect the circuit.

While we know for sure that Brookfield made several different switch bushing designs, it appears that Hemingray may have also. Note the two specimens on either side. While unembossed, they bear all the hallmarks of a Hemingray product: glass clarity, sharp mold edges, and typical Hemingray Blue and aqua colors. Also, note the four indentations around the outside of the "skirt", which is absent from the equivalent Brookfield products R 5043 and R 5050.



BT 2050 (9 RIBS)

DIMENSIONS: 3 1/2" WIDE, 6" HIGH
BORE SIZE: 1 1/4" (TOP); 2" (BOTTOM)
WEIGHT: 52 OZ.



BT 2050 BASE VIEW



BT 2050 TOP VIEW



BT 2051 (10 RIBS)

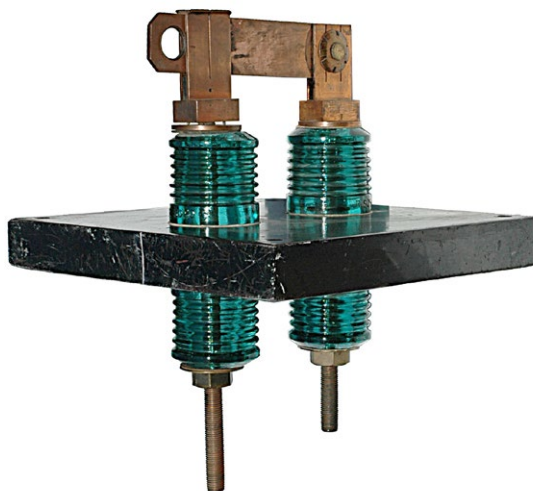
DIMENSIONS: 3 1/2" WIDE, 6" HIGH
BORE SIZE: 1 1/4" (TOP); 2" (BOTTOM)
WEIGHT: 53 OZ.



BT 2051 BASE VIEW
NOTE THE STEPPED, GROUND BASE



BT 2051 TOP VIEW
NOTE THE 4 EXTRA INDENTATIONS
AROUND THE TOP INSET RING



ABOVE: SWITCH ASSEMBLY WITH FOUR
R 5050 BROOKFIELD BUSHINGS ATTACHED.
PHOTO CREDIT DWAYNE ANTHONY



ODDS & DEAD-ENDS (PART 3)

HEMINGRAY GLASS BUSHINGS (CONTINUED)

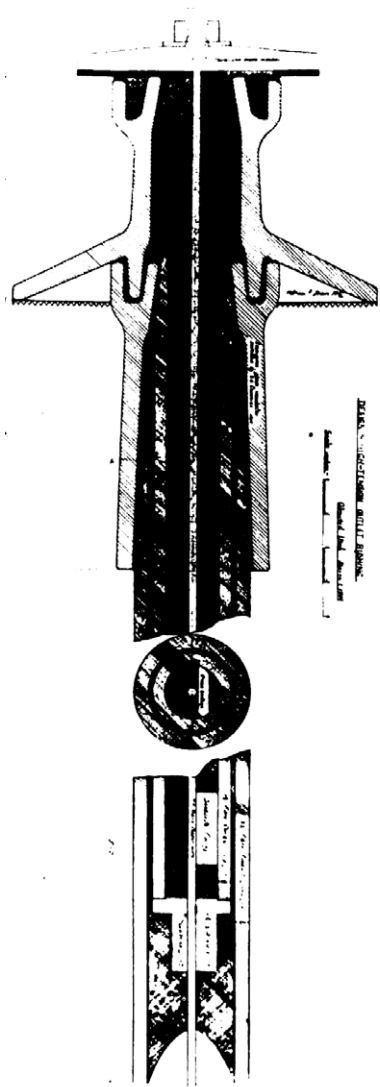


Fig. 18.



Fig. 19.

Experimental Outlet Bushings

While these insulators were never really designed to be used as bushings, they deserve an honorable mention for creativity. As part of a 1906 Master's Thesis, a couple of Hemingray insulators were used as bushings to test how to make better high tension outlets for electric substations / powerhouses (where the high tension lines exited the building).

These photos and illustration appeared in a 1906 University of Wisconsin Master's Thesis by Alvin Meyers entitled "A Ten Thousand Horse-Power Hydro-Electric Installation at Olmsted, Utah, with Special Reference to High-Tension Wiring and High-Tension Outlets."

In the experiment, two different insulator setups were tested. The first setup utilized two pieces of the super-rare CD 317.8/313/313/313.1 multipart invented by V.G. Converse and manufactured by Hemingray. Figures 18 & 19 show the "middle piece" (CD 313) and "base" (CD 313.1) used as bushings. The estimated cost of each piece was 27¢!

The second setup (shown in Fig. 21 below) utilized a modified CD 283 Hemingray No.1 Provo Type with what appears to be a hole drilled through the top of the insulator.



Fig. 21.



Floors and Windows and Walls, Oh My!

Last but certainly not least, one could argue that Hemingray floor tube insulators (also referred to as window tubes or wall tubes) are also considered a type of bushing, as they were designed to protect a wire as it passed through a wall, floor, etc. I agree! However, I consider floor tubes to be a large enough category that it warrants its own article, so I'll be tackling floor tubes in Part 4. Stay tuned for the next issue! ▲