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Encyclopedia of
Victorian Colored Pattern Glass
Book 7

Ruby-Stained Glass From A to Z

by **william heacock**

Editor
Tom Klopp

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Dedication
This is for Sid

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PREFACE

As we go to press, the publisher informs me that I have exceeded budget and the book's tremendous size was incompatible with marketable pricing. The decision was made to make this into two different books, the first with the pattern glass in ruby-stained, the second to include the novelties, souvenirs, and additional ads and catalogue reprints which we would have had to eliminate entirely without the two-book concept. So you will be hearing soon about a **BOOK 8—MORE RUBY-STAINED GLASS FROM A TO Z**, in the immediate future. This second book will include a listing of patterns which have been reported, but not been proven, in ruby-stain. It will also include major chapters on amber-stained and other color-stained pattern glass.

ACKNOWLEDGMENTS

This book is dedicated to a wonderful gentleman whose generosity in allowing me and my color photographer to disrupt his home for a full week can never be repaid. He asked to have his name left out of this book entirely, but I have decided to take the responsibility of providing a gentle form of notoriety by noting his nickname. He has provided glass for my books in the past, and for years encouraged me to consider this book on ruby-stained glass. Shortly after the photography was completed in 1982, his health failed and he is now bedridden. The delays in getting this book published have been a constant source of guilt and embarrassment to me these past four years, but this kind and understanding gentleman was always supportive and knew that eventually it would be finished and it would be done right. I hope in some small way that this book will be an enduring testament to our friendship and his love of early American glass.

Whereas the color photographs were taken in Illinois, I travelled to Vermont to shoot black and white illustrations from another major collection. Howard and Martha Morse opened their home up to me, found me a local studio to develop the pictures overnight, and aided me as I struggled with my new camera alone. They patiently awaited this book's publication all these years, and I can never thank them enough for their understanding support.

Other glass or photographs for this book were loaned over a period of several years, and I have tried to keep records of all the contributors. If their name is missing from this list, it is a dreadful oversight, and I ask them to forgive me. If they will drop me a note, their names will be added to "Part 2" of this book (**BOOK 8**), which is mentioned above. My thanks to William Gamble, Everett and Addie Miller, Shirley and Howdy Sanders, Fred and Oleta Whitecotton, Harry and Nancy Ware, Ron Baker, Tom Neale, John Britt, the couple from Burlington, Vermont, John and Eve Gordon, and Darrel Fontes. My briefcase was stolen out of my van four years ago and many personal records lost forever, so some names have been inadvertently forgotten.

For permission to reprint catalogues and advertisements, my appreciation is expressed to The Corning Museum of Glass, their research library and most helpful staff. Per-

mission for reprints was also granted by Kamm Publications (the Pioneer Glass Co. catalogue), Marcelle Bond (Model Flint Glass), the Millers mentioned above (New Martinsville Glass), and Fred Bickenheuser (McKee and Duncan/Miller glass). Their contribution is not to me alone, it is to glass history, and we all owe them a tremendous debt of gratitude. Reprints of advertisements are thanks to the work of my editor, Tom Klopp, The Corning Museum of Glass, Frank Fenton (The Fenton Art Glass Museum) and my future co-author Berry Wiggins.

As this volume is made up of hundreds of pictures, it is impossible for me not to thank the photographers who worked with me over the past four years on this project. Chuck Smetana, Rosario Trepepi and my good friend Rebecca Van Brackel are the studio geniuses who captured the pattern detail of the glass at its finest. However, some of the illustrations used in the alphabetized pattern section were from my extensive files of letters from readers who sent me photographs in the past asking to help identify their unknowns. These non-professional photographs were my only documentation of existence in ruby-stain, and some were used to back up their inclusion in this book. Hopefully to those of you who never received a reply to your plea, this book will provide you with the answers to your mystery pieces and perhaps even provide you with many more answers.

For invaluable services in helping with the color photography, I want to let Shirley and Stan know how much their work was appreciated. I know Sid appreciated it too.

A final word of thanks to Tom Klopp, editor of my series **COLLECTING GLASS**. While Volume 3 of that series was put on hiatus in order to finish this book, he helped me research the cross reference data and searched out microfilm records of old journals for important ads and trade quotes, some of which were reprinted in this book. He looked over the material, but it should be understood that due to the strict deadline, much of this book had to go to press unedited by Tom. He is still, however, a major contributor to this volume and his name belongs on the title page with mine.

INTRODUCTION

At last, four years of research, photography and research come to a temporary end with the publication of this book. I say "temporary" because my research never ends. I hate taking my books to press with incomplete research, but continued postponement is impractical. I cannot hold back the wealth of data from my information-hungry readers while I continue to seek unknown data. Some answers to the mysteries will NEVER be known. Such is the nature of the true historian.

Originally planned for a publication in 1982, the book was delayed for several reasons. First, the immense nature of the project proved overwhelming at times when the vast number of patterns were assembled together for the alphabetical listing. The ruby-staining of glass did not come into vogue until 1891, although there was some being made as early as 1888, the year of H. E. Mueller's patent. This peak period, from about 1892 to 1912, a full twenty years, was the "Golden Age" of the pressed glass industry in America. Millions of words from the trade journals of this period had to be studied for clues concerning pattern origin, requiring several trips to the microfilm library at Corning. An entire day would be necessary at times to cover a single year's journals. Important quotes were copied and the stacks of material had to be organized chronologically. In 1984, the computer age made it possible for me to enter this data in my computer/word processor, requiring additional delays while the words were fed into the brain center. One cannot imagine my frustration as I bring this book to press without full coverage of this 20 year period. A continued postponement of the project would only serve to frustrate my readers and my publisher, whose investment in this massive work was considerable.

Much of what you will see in this book is new material. Original manufacturer names have been reinstated on many pattern lines which for years have had popular acceptance of other names. This practice is advisable primarily as historical accuracy. To reinstate the original name is to document origin, to reclaim heritage. Collectors of glass must accept this heritage with a forced awareness of the "right of priority". The first name assigned, that by the manufacturer which introduced the line, is the rightful heir to nomenclature.

There are, of course, exceptions. Some lines were known only by numbers, and the later writers on glass, some of whom had no knowledge concerning glass history, introduced names which I have endorsed. In most cases, the first writer to name the pattern is cited. The exception is where I have chosen to overlook a seldom-used Millard (*Goblets 1* and *Goblets 2*) name for one introduced by Kamm or Peterson. My position concerning the Millard books, with their gross errors in age estimation, is well known among my readership. In some cases, he gave the same pattern a name, twice or even three times. Millard names are listed under AKA (also known as) in the text, but few are endorsed as advisable alternatives.

HOW TO USE THIS BOOK

Information about most of the factories which were prominent in the production of patterns known in ruby-stain, as well as a brief history of the decorating firms, can be found at the front. The color section is a representative example of the many patterns, all given Figure numbers. However, the main alphabetical body of this book is where the detailed research can be located. The patterns are listed by the most appropriate, in my opinion, designation. Other names are also listed, with reference to the location where the data is alphabetized. Novelties, souvenirs, and prominent shapes like toothpick holders, powder boxes, plates, etc., will be shown in Book 8. The catalogue reprints follow, and then advertisements, concluding with the index and reference key (bibliography). Book 8 will also include additional catalogue reprints, more ads, and the other colors in stained pattern glass (amber, rose, amethyst, etc.).

ABBREVIATIONS

FIG: (Figure number) Reference to color illustration, pp. 25-60

MFR: (Manufacturer) although it is possible that the molds were used elsewhere when the molds for the line were discontinued by the parent company. Molds were also relocated after the two big mergers—U.S. Glass and National Glass—closed down unprofitable factories.

NAME: Author/reference where pattern name first provided, not necessarily the very first listing of the design. OMN's are always preferred except in rare cases), even if discovered many years after a previous name has been accepted and used by collectors

YOP: (Years of production) Estimated intro and discontinuation from best evidence available

OMN: Original manufacturer's name or number listed here

AKA: (also known as) Other names used in other references

REF: (References) Where pattern appears in other major references. A long listing is an indication of the former awareness of the pattern, but not necessarily the line's popularity. A short list indicates that most dealers have difficulty identifying the pattern.

NOTE: any important additional data

LOOK-ALIKE: Similar designs in pattern glass which may confuse you are listed here.

OTHER ABBREVIATIONS:

CATA—reference to a catalogue page reprint

AD—reference to an advertisement reprint

p.—page number

pp.—page numbers

r.s.—ruby-stained

s/b—should be

See also the abbreviations for references cited in our REFERENCE KEY.

RUBY-STAIN OR RUBY-FLASHED?

Obviously the correct term is "stain" by my choice of the word on the cover of this book. However, some collectors and dealers continue to insist on the use of the word "flashed". The glass industry used the term "flashing" to describe a thin layer of glass on the surface of a glass object which could change the base color. This is sometimes confused for "casing". Some writers, including myself, have gotten into the habit of calling the paler "rose" (or Maiden's Blush) staining "rose-flashing". It is actually a light cranberry or pink **staining**. The other colors used in heat-applied or cold decorations should also be called "stains" from this point on. **Flashing** is a layer of glass, **staining** is a coating of paint.

Ruby-stained glass was painted with a chemical solution including sulfate of copper which, when exposed to a high kiln temperature of about 1,000 degrees, would turn color and adhere to the surface of the glass permanently. Some of the "cold" decorations adhered to the glass, but can be easily scratched off or wear badly with continued usage. The rose-stained pieces may have been subjected to some refiring process, but it is a well known fact that eighty years later, this glass is frequently found today with some of the color faded.

WHAT PATTERNS WERE MADE IN RUBY-STAIN?

One of the difficulties in putting this book together was the realization that decorators purchased blanks from virtually all manufacturers of clear pressed tableware. This meant that there was a possibility that an example of virtually any pattern made between 1891 and 1920 could be found in ruby-stained.

During the 1891-1911 period, a full two decades, hundreds of complete lines of tableware were produced. As the popularity of ruby-stained tableware waned, and the tableware industry whimpered into a new era of production, the decorators remained in business with the production of cheaply made and cheaply sold souvenirs. Perhaps they bought overstocks, close-outs, factory seconds, etc. at a reduced bulk price and the items were marketed as souvenir novelties. There are many examples of patterns represented in this book which are known only in a single ruby-stained piece. This translates that the entire table line is unlikely to be found in this color.

DECORATING FIRMS

To date, little has been written concerning the handful of independent decorating firms which did not actually make glass, but purchased finished blanks from other factories, then selling the product as their own. In some cases, these decorators entered contracts for coloring or hand-painting or engraving the ware of glass factories which did not have their own decorating department. The glass was then returned to the factory or origin and marketed by the original manufacturer. This last practice is known to have been undertaken by Greensburg Glass Co., Ltd. and possibly A. H. Heisey and Co. However, Heisey also sold their blanks outright to Oriental Glass Co. at Pittsburgh, most notably the valuable **LOCKET ON CHAIN** design, and Oriental then released it to the market as their own product.

Oriental Glass Co. may have been the most famous of the decorating concerns, but there were others which made important contributions to the field of ruby- and amber-stained glass. The Pioneer Glass Co. (which became L.J. Rogers' factory) and the Mueller Glass Staining Co., both

also from Pittsburgh, were major decorators which are not known to have actually made the glass itself. Cohn & Nimick is mentioned briefly in trade journals and Beaumont Glass Co. was a decorating firm before they actually started to make glass in 1899. After 1900, two smaller concerns appeared on the scene, the American Glass Specialty Co., with decorating kilns at Monaca, Pa. and one later at Jeannette, Pa., and McGee-Dieters Glass Co., of Brilliant, Ohio. Both firms were mentioned only briefly in trade journals. The former specialized in the souvenir trade.

Since this book is virtually a testament to the decoration of clear pressed glass, I have decided to share my computerized history of these companies with a reprint of all the trade journal quotes which I could locate during the four years of research on this project.

Some collectors have expressed concern over the difference in coloration found on ruby-stain. A perfect example is the **SCROLL WITH CANE BAND**, by West Virginia Glass Co. It is known with a lovely pure red and also is found with a muddy brownish-red. The patents we record on the formula and staining process indicate that if the chemical mixture or the temperature were not exactly right, the final color may go awry. There were half a dozen different ruby-staining firms, and each one probably had its own formula. Some pieces of this glass are found today with a stain which reveals golden or iridescent highlights when reflected against the light. Collectors should not concern themselves over these differences. There is little reason to fear that an old piece of glass has been recently stained by an unscrupulous dealer. It is true that old glass can be redecorated with enamel or gold and fired for permanence. This is being done on some custard glass which has faded gold. I am told of some experimentation taking place by glass repairmen, but there is presently no cause for alarm. The attempts recently at ruby-staining by Guernsey Glass Co. on their "**BAD BUTTON ARCHES**" toothpicks (see repros in Book 8) are a deep purplish-red, and easily susceptible to scratches.

WHO GETS CREDIT — THE DECORATOR OR THE GLASS MANUFACTURER?

One difficulty in attribution is who actually should receive credit for the production of the ruby-stained pattern. We have patterns known as **PIONEER NO. 21**, **PIONEER'S VICTORIA**, **PIONEER'S NO. 15**, etc., which we now know were Crystal, Greensburg and Westmoreland blanks. The glass was made at other locations, purchased by Pioneer for decoration, and then marketed (fortunately by the manufacturer's original name or number) as a Pioneer product. My opinion is that the glass should be credited to the glass manufacturer, not the decorator. This is in spite of the fact that the red-staining can triple the value of the pattern over undecorated.

The same problem exists with the awareness that molds were moved from factory to factory within the National Glass and U.S. Glass conglomerates. It surprised many when it was learned that Riverside's popular **CROESUS** pattern was also made by McKee & Bros. (*H6, p. 77*). Both mergers, upon consolidation, closed unprofitable factories and moved the molds to more modern, streamlined locations. Both firms had plants burn down, so surviving molds were moved to other locations for continued production. The pattern may have been introduced by a particular factory, but there are dozens of cases where additional production took place elsewhere.

Along this same line, when particular patterns were no

longer popular, they were removed from the market. These molds were possibly sold to manufacturers of cheaper "tank" glass, which was marketed to bargain conscious distributors. The Federal Glass Co., Dugan Glass Co. at Lonaconing, Md., and Lancaster Glass Co. apparently purchased many discontinued molds, rather than invest heavily in new molds, to begin their new factories. Patterns introduced at various U.S. Glass and National Glass factories before 1904 appear in later catalogues or ads from these other firms. It is possible, indeed likely, that a souvenir example of glass was purchased cheaply, to be sold cheaply, so the actual attribution must be a matter of opinion.

Glass made by the National Glass Co. is a particular problem. The firm fell on hard financial times almost immediately after organization and the molds were one asset of which they made use to raise capital. National molds moved from location to location almost indiscriminantly.

One must remember that these factories were run by businessmen. If a town offered incentives for a business to bring jobs to their location, these businessmen would relocate their factories, workers and molds to new locations, sometimes changing the name of the company to accommodate the new locale. The Brilliant (Ohio) Glass Works became The Greensburg (Pa.) Glass Co., so the patterns made by this company (with two factory locations) are called Brilliant/Greensburg. But we now have conclusive proof that the molds were then sold to the new Huntington (W. Va.) Glass Co., and when that firm folded the molds may have been moved to the new Royal Glass Works, Marietta, O. Royal then joined National Glass Co., and when the factory burned down in 1903, who knows where the struggling National owners sent the molds?

You can thus witness the difficulty in sorting out this gigantic jig-saw puzzle of trade journal quotes, factory advertisements, studying the actual glass made, the colors, the shapes, the variations, and hopefully finding a factory catalogue with which to compare all of this data. Sometimes this jig-saw puzzle, instead of providing a clearer picture of the final answer, becomes more of a boiler-pot of murky soup.

ORIGINAL MANUFACTURERS' NAMES

Glass enthusiasts may notice as they flip through this volume that their favorite pattern may be alphabetized under a name which is totally foreign to them. This is probably because this new computer research now makes it easier for us to single out and identify original manufacturers' names for certain lines from trade journal descriptions. Let me try to explain the reasons for this practice.

Perhaps some will criticize me for being so rigid in reinstating original names over far more popular "collector" names (POP NOM—popular nomenclature). Even Kamm, who made such effort to re-introduce original names, did not attempt to change the name of the popular SPRIG pattern (*K8, p. 3*) which she thought was Bryce, Higbee's ROYAL line. The ROYAL name seems to have been used by as many different factories as COLUMBIA and VICTORIA. But mankind has lasted for centuries with thousands of Marys, Williams, Georges and Annes. What made them distinct was their surname, the parentage. Think of this book as an exercise. We have to start calling all those COLUMBIA, VICTORIA, ROYAL, PURITAN, and PEERLESS patterns by their "surname", the name of their parents—the factory of origin.

However, on an ironic parallel, just as children can change parentage through adoption, pattern glass can have more than one name or parent. The Steimer Glass Company

introduced their DIAMOND pattern in 1906, but when the firm closed down months later, the molds were acquired by the new Union Stopper Co. and the line was renamed RADIANT. Technically the original parent should receive credit. But I chose to endorse the Union Stopper Co. name because of our catalogue reprint. It sometimes boils down to a choice. Some of my choices may not be the best.

My work as a glass historian has become increasingly important to me. Since this is virtually a lost history in glass with which we are dealing, I feel I must make my readers more aware of the "roots" of their glass. Reinstating original names is part of this. The long-time collectors may balk. It is hard to accept change. But these reference books I am writing will be used by thousands of future collectors, dealers, and as the decades progress, museums. Naming the manufacturer of a line of glass is important. Almost as important is knowing what the parents named the child.

One problem in using original factory names is that many competitors in the business used the same name for different lines. In one case, one factory named a line ALEXIS, and when a member left the firm and became president of another firm, the OMN ALEXIS was used again. One cannot help but speculate that this was some loved one special to W.A.B. Dalzell, of Dalzell, Gilmore & Leighton and later of Fostoria Glass Company. In some cases I have circumstantial evidence as to the OMN of a line, but no proof, so it is difficult to endorse that name. I am almost certain that DOUBLE DAISY is Riverside's CHRYSANTHEMUM, but do not have enough to back up a name change. LEAF-IN-OVAL may be Tarentum's FLORIDA pattern, HORSESHOE MEDALLION may be New Martinsville's MAURETANIA. All of these original names were found in early trade journal announcements, with no description of the line to add clues, but the estimated year of production matches these lines known by different names today.

COPIES AND LOOK-ALIKES

Sometimes it is hard for us glass collectors to conceive that our glass was not made by a group of artists seeking self-expression. We forget that the precious tableware we so carefully preserve as an investment was made by glassworkers in factories designed to produce a product for public consumption.

In other words, our glass was the direct result of the corporate mind intent on turning a profit. The trade journals repeatedly refer to organizers of new glass factories as "capitalists". These investors saw a profit in glassmaking, not a chance to make something pretty. I always believed that Northwood the businessman was not nearly as happy as Northwood the glass artist. It is a well-known fact that the creative mind of the artists usually does not prove compatible with the deductive mind of the organizer. Rarely do film actors manage their own careers or their money.

When the public demands a product, businessmen are right there to provide it. It matters not that the ware is plain, substandard in quality, a cheap imitation, unoriginal. One famous glass manufacturer was quoted as saying, "It is not who makes it first who gets the business: It's who sells it the cheapest."

Thus we enter the world of competition amongst the many factories hustling for their share of a shrinking market. As the demand for tableware reduced considerably after 1890, and yet new factories continued to spring up every year, the competition became intense for design ideas. Each year, the manufacturers would unveil their newest pattern

lines to the trade at the annual Pittsburgh exposition, and the "hot ticket" sellers would become obvious to the representatives with blank sales books. If a line did not sell well at the show, the line could possibly be discontinued, and in some cases the molds retooled to more salable styles. But even more important, sometimes the best-selling patterns were simulated or in some cases outright copied (RED BLOCK), and a competing line would be placed on the market within months, before the original manufacturer got too strong a hold on the buyers.

RETOOLED MOLDS

Little attention has been paid in the past to retooled molds. The cost of producing a set of molds for a new line could amount to thousands of dollars. If a line did not sell when introduced to the trade, or when the selling life of a line came to an end, sometimes new detail was carved into the metal mold for an additional run. Such appears to be the case on a few patterns, which makes it possible for us to name the manufacturer. Tarentum Glass Company probably retooled the LADDERS molds into the later PURITAN line. McKee may have retooled their BUTTON PANEL WITH BARS, a rare pattern, from the simpler (and more common) VULCAN line. Beaumont may have changed their COLUMBIA molds into the pattern known as WIDMER.

When a line of molds was used on a big seller, the molds would wear out and retooling was necessary to keep the detail sharp. Slight changes in dimension could occur during this retooling, and occasionally a foot or rim or shape would be changed to accommodate changes in the public's fancy. The tumbler form, which required the making of six tumblers for each water set, is highly susceptible to mold wear, and a number of cases are known where "variants" exist.

RUBY-STAINED GLASS FROM EUROPE

A few pressed glass patterns from Inwald of Czechoslovakia are known in ruby-stain. This presents the distinct possibility that the DECORAMA tumbler and the few examples of JACOBAN known in ruby-stain were purchased from importers for staining here in America. The Bohemians were no strangers to the production of color-stained glass. They invented the process centuries ago. But most definitely it is rare in pressed glass form, and may have been introduced right at the end of the ruby-stain era, circa 1920.

It is not unusual to find American made glass in ruby-stain resting inside British-made silver-plate holders. Most commonly seen are small berry dishes in U.S. Glass or McKee/National patterns inside a single or double jelly holder. Perhaps an American decorating firm sold a bulk-load of these berry dishes to a British silver-plate manufacturer who was taken with the popular color-combination.

DANIEL C. RIPLEY, AUGUSTUS H. HEISEY, AND GEORGE B. SWIFT, OF
PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF ORNAMENTAL GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 331,824, dated December 8, 1885.

Application filed September 21, 1885. Serial No. 177,662. (Specimens.)

To all whom it may concern:

Be it known that we, DANIEL C. RIPLEY, AUGUSTUS H. HEISEY, and GEORGE B. SWIFT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Ornamental Glassware; and we do hereby declare the following to be a full, clear, and exact description thereof.

10 It has been customary in the manufacture of parti-colored glassware to cover the surface of the clear-glass article with a thin layer of colored glass by the process known to the glass trade as "flashing," and then to cut the desired figure or pattern into the surface of the article through and below the colored surface-layer. The product of this process is one of the most expensive kind of glassware, for the reason that the operations of "flashing" and "cutting" are both very expensive. Consequently this glassware is in but limited use, and is practically beyond the reach of persons of limited means.

25 The object of our invention is the production of an article of similar character and like appearance at a greatly reduced cost.

To enable others skilled in the art to make use of our invention, we will now describe it, reference being had to the accompanying 30 drawings, in which—

Figure 1 is a bottom view of a glass dish produced by our improved method, and Fig. 2 is a side view of the same.

Like letters of reference indicate like parts. 35 The dish *a* is pressed in a suitable mold, the inner face of which is cut with the design or pattern, which will produce the design which appears on the surface of the article, consisting of a series of grooves, *b*, crossing each other at various angles, in imitation of a pattern produced by the operation of glass-cutting, 40 and such as will leave a series of raised surfaces, *c*, of the shapes shown, or of other shapes,

depending on the particular pattern selected. The raised or elevated surfaces are then coated 45 with a suitable coloring-matter or paint, leaving the grooves or depressed portions clear, and then the article is placed in a suitable oven or furnace, and the coloring-matter is baked in the manner practiced in baking 50 decorated plaques.

The pressing operation, if carefully conducted with clear sharp-cut molds, will produce articles so nearly resembling cut ware that the difference can only be detected by an expert, and with a little care the application and baking-on of the color can be so perfectly done as to be indistinguishable by inspection of the article alone from flashed glass.

The cost of the whole operation is little, if 60 any, greater than that of the flashing operation, and it produces a beautiful and salable article, which the manufacturer is able to sell at a price low enough to put it within the reach of persons of limited means who are 65 unable to afford the cut ware before referred to.

What we claim as our invention, and desire to secure by Letters Patent, is—

The method of making ornamental glassware, which consists in pressing a glass article with raised and depressed surfaces, in imitation of cut-glass patterns, painting the raised surfaces, and then baking in the color on the same, substantially as and for the purposes 75 described.

In testimony whereof we have hereunto set our hands this 2d day of September, A. D. 1885.

DANIEL C. RIPLEY.
AUGUSTUS H. HEISEY.
GEORGE B. SWIFT.

Witnesses:

W. B. CORWIN,
THOMAS W. BAKEWELL.

UNITED STATES PATENT OFFICE.

HENRY E. MUELLER, OF PITTSBURG, PENNSYLVANIA.

METHOD OF COLORING GLASSWARE.

SPECIFICATION forming part of Letters Patent No. 382,105, dated May 1, 1888.

Application filed March 1, 1888. Serial No. 566,026. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. MUELLER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful improvement in the Method of Coloring Glassware and I do hereby declare the following to be a full, clear, and exact description thereof. My invention relates to a certain new method of coloring lime glassware, which I shall describe with reference to the accompanying drawings, in which is shown a form of muffle or furnace by means of which my invention may be practiced.

In the drawings, Figure 1 is a longitudinal vertical section of the muffle on the line *x x* of Fig. 2. Fig. 2 is a front view thereof, and Fig. 3 is a vertical cross section on the line *y y* of Fig. 1.

Like symbols of reference indicate like parts in each.

The muffle 3 is a chamber having at the front a removable door, 2, by which the chamber may be opened to introduce the glassware or closed to confine it therein and to exclude air, and inside the muffle are a series of shelves or supports, 8, on which the glassware is placed. The muffle is surrounded by a flue, 4, which communicates with a squirrel-tail flue, 5, at the top, and at the base communicates with the combustion-chamber 6 under the muffle, in which are the gas-burners 7. The burners are preferably three or more in number and extend from end to end of the muffle.

In practicing my invention, for the purpose of coloring glassware—*e. g.*, lantern-globes or other articles—with a ruby color, I first paint the surface of the glass with a suitable metallic pigment of copper. The following I have found to be very suitable for the purpose: An oxide or sulphate of copper, about six pounds; yellow ochre, about four pounds, and pulverized charcoal, about one pound. These are ground together in a paint-mill with an addition of sufficient molasses or similar substance to enable the pigment to be easily applied to the glass and to cause it to adhere thereto. I wish to be understood, however, that my invention does not reside in the use of the particular compound, since other suitable copper or gold pigments may be employed; but it consists in the method of treating the glass after the pigment has been applied, for the purpose

of producing a better and cheaper color than has heretofore been possible.

When the surface of the glass article has been coated with the pigment, as above described, it is placed in the muffle-chamber 3, and when the muffle is conveniently full it is closed and the gas-burners 7 ignited, so as to raise it to a high degree of heat. When the article has been heated sufficiently to change the pigment first to a white color and then to a light brown, some or all of the gas-burners are turned down and the muffle allowed to cool partially for a time—say about fifteen minutes. Then the heat is somewhat increased, and bituminous coal—say about one peck for a muffle of the size shown in the drawings—is thrown into the muffle-chamber under the shelves 8, and care is taken to close the muffle sufficiently tight to exclude air therefrom. The heat of the burners distills the coal and fills the chamber with the coal-gas, which has the effect of changing the surface of the article to a yellowish-green color. After all or nearly all of the coal has been coked—say after forty-five minutes or one hour—the gas is turned off, and after allowing the muffle to cool the glassware is removed and pigment washed from it. It is then replaced in the muffle for the purpose of finally developing the ruby color, and a larger quantity of fresh bituminous coal—say about three pecks—is charged into the muffle under the shelves. The muffle is then closed and a slow heat applied thereto by means of one or more of the gas-burners. The distillation of the coal thus caused smokes the glass until it assumes a polished black appearance, and when the coal is coked—say after six or eight hours—the coke is withdrawn and the gas is turned on, so as to increase the heat of the muffle to a temperature of about 110°. The oven is then cooled, and when the glassware is removed and washed it will be found to be of a beautiful color. Instead of bituminous coal it is possible to use pitch, tar, resin, or dry wood as equivalent substitutes therefor.

I have reduced my invention to practical use and find that it is of great advantage, and that by its use I am enabled to color glassware more cheaply and with better results than have heretofore been possible. The feature of this process in which my in-

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vention consists, and which I desire to claim, broadly, is the use of the coal-gas in the first heat for the purpose of producing the green tinge on the article, and thus to prepare it for afterward receiving the final development of the ruby color. I believe the application of gas at this stage of the process to be altogether new and to be the cause of the very good results which I have obtained.

I claim—
1. The method hereinbefore described of coloring glassware, which consists in painting glassware with a pigment, burning the pigment, and subjecting the glassware in a closed muffle to the action of coal-gas, substantially as and for the purposes described.

2. The method hereinbefore described of coloring glassware, which consists in painting glassware with a pigment, burning the pigment, subjecting the glassware in a closed muffle to the action of coal-gas, and, finally, developing the color, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 27th day of February, A. D. 1888.

HENRY E. MUELLER.

Witnesses:
W. B. CORWIN,
THOMAS W. BAKEWELL.

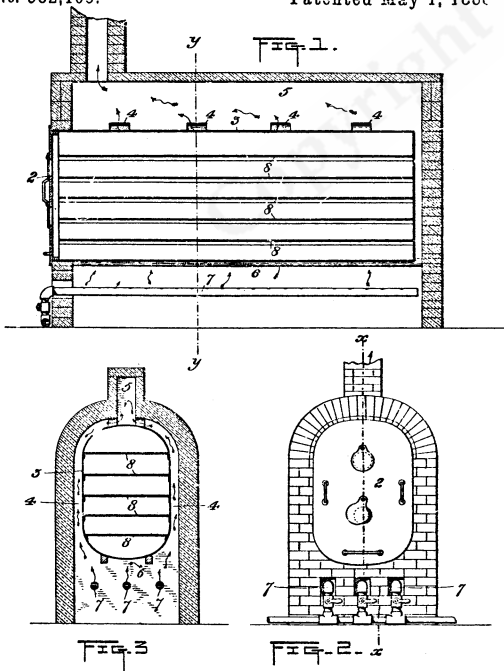
(No Model.)

H. E. MUELLER.

METHOD OF COLORING GLASSWARE.

No. 382,105.

Patented May 1, 1888.



WITNESSES:
J. K. Smith,
C. Hankley.

INVENTOR:
Henry Edward Mueller,
by W. B. Corwin & Thomas W. Bakewell.

There are a number of different patents for ruby-staining, including the two shown on this and the preceding page for 1885 and 1888. The process of painting and firing the color for permanence is clearly described in the patent description. In 1895 Messrs. Andrew Stock and Emil Mueller of the Oriental Glass Company patented a "painted amberina" which seems to be the combination of ruby and amber-staining found on GREENSBURG'S FLORIDA and possibly FLOWERED SCROLL. The illustration shown on the 1885 patent pictures an item in Ripley's MASCOTTE pattern, which to date has not been seen by me in ruby-stain (see PETPAT, p. 172). The two patents here precede the peak period of ruby-stained production, which seemed to begin about 1891, the earliest recorded date of the decorating independents, and ended around 1920.