

Washington & Franklin Coils

Production of the Third Bureau Perforated Flat Plate Issues of 1908 to 1914

The **Purpose of This Exhibit**: is to show the development and changes in production methods that took place in the making of the five Third Bureau perforated flat plate coil issues.

Key Items are Highlighted in Red

Exhibit Plan

I. Each section will include the coil stamps, production methods, and varieties associated with the issue.

- A. 1908 Perf-12 Double Line Watermark
- B. 1910 Perf-12 Single Line Watermark
- C. 1910 Perf-8.5
- D. 1912 Perf-8.5
- E. 1914 Perf-10

Historical Significance and Importance

The development of the Third Bureau perforated flat plate coil issues is directly tied to the industrial revolution. The invention of vending and affixing machines, and the businesses associated with their use were responsible for encouraging the production and development of government coils.

The following reasons contributed to the development of the perforated Third Bureau flat plate coils.

- Vending machines made it convenient for the public to purchase stamps.
- They reduced the cost of clerks and the branches needed within the city.
- Affixing machines greatly speed up the process of applying stamps to mail.
- Exactly 444 different major issues of United States stamps resulted because of the development of coils.
- A large number of production varieties such as paste-ups, line pairs, shades, design spacing, and imperforate errors were created because of coils.



Reverse Paste-Up Detail

Color enlargement of right side of 1 cent horizontal coil. Note, paste-up tab is under the right edge of the stamp instead of the usual left edge.

See reverse paste-up section for details on how this occurred.

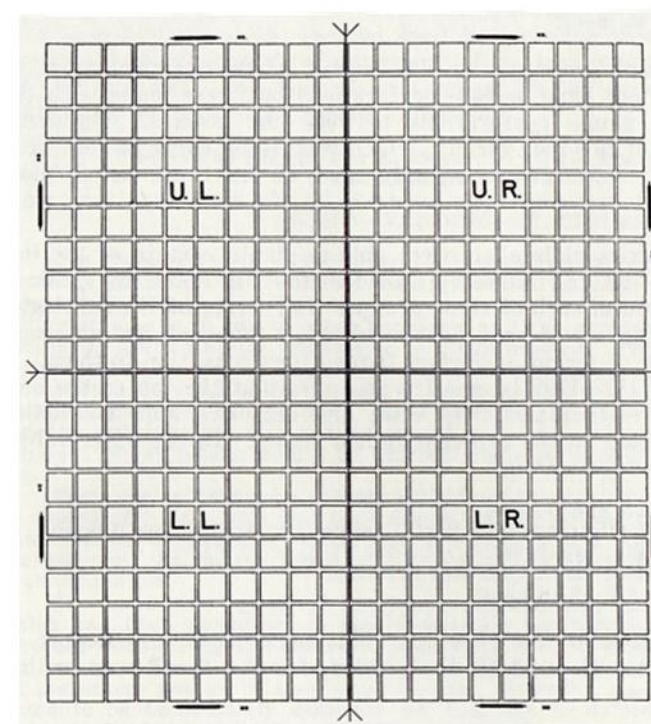
Only Recorded Use of a Reverse Paste-Up

PF 278274

Perforated 12

1908 Issue

Double Line Watermark



U S P S

Actual size of the letters.

First issue was printed on double line watermark paper.

Preprinting Paper Fold



Post Printing Paper Fold

- The first plates used to produce coils had 2mm horizontal spacing between all designs.
- Coils from the first plates can be identified by 4000 series plate numbers.
- The Star plates soon followed the first plates due to a production problem with spacing.

Production Sequence →

- Design was printed
- Paper was folded
- Gum applied to paper
- Paper was unfolded.
- Paper was perforated and slit into coils.



Highlighted area showing lack of gum on actual coil stamps.



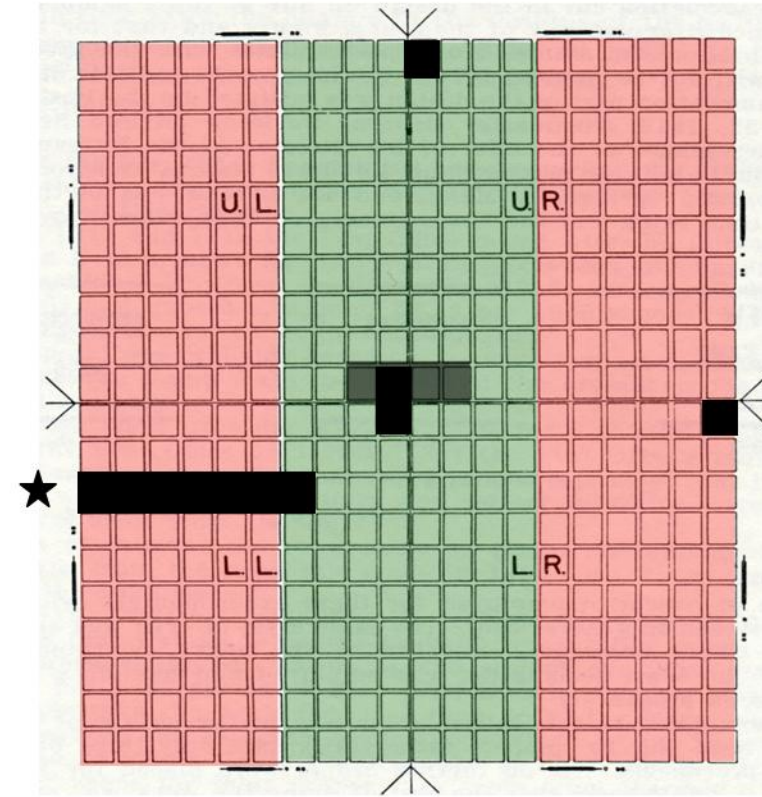
Flat Plate Coils

- The Bureau produced 5 different issues from 1908 to 1914.
- The coil stamps were produced from existing sheet stamp stock.
- Production changes made in watermark, perforation gauge, plate configurations, and coil construction created many new varieties.
- A total of 32 different flat plate perforated coils were issued.

Enhanced color enlargement with outline of detailed area showing paper folds.



Reverse paste-up, tab with imprint. See next page for details on coil construction.

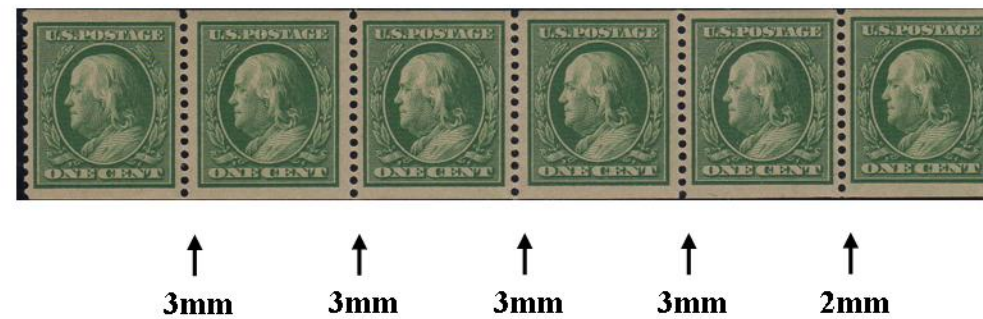


400 Subject Star Plate Pane
Highlighted areas in black pinpoint locations of reconstructed Bureau imprint, guide line and arrow, and strip of 6 with varied spacing.

- 2mm Inner 8 rows of plate had 2mm spacing.
- 3mm Outer 6 rows on each side had 3mm spacing.

The 1908 issues consisted of five values. The 1, 2, 4, and 5 cent denominations were issued in both vertical and horizontal format. The 10 cent denomination was only issued in horizontal format.

- Major Production Characteristics of 1908 perf-12 Series**
- 1) First coil series produced for sale to the public.
 - 2) Printed on double line watermarked paper.
 - 3) First panes of 400 had 2mm horizontal spacing between designs.
 - 4) Later issues of the 1, 2, 3, and 4 cent values were printed on Star plates.
 - 5) Star plates had varied spacing of 2mm to 3mm between designs.
 - 6) Panes were cut into strips of 20.
 - 7) Strips were pasted together by hand and rolled into coils of 500 or 1,000.
 - 8) The entire process took 17 workers to complete the task.



★ Strip of 6 shows the varied spacing from a possible location on the left side of the 400 subject pane.



Guide Line & Arrow

- The guide line & arrow markings indicate where the panes were to be separated.
- Guide line pairs occur once every 20 stamps.
- The 1 cent vertical pair and 2 cent horizontal strip of 4 come from the exact center of the 400 subject pane.
- Highlighted areas in black pinpoint locations of guideline and arrow examples.
- The Star plates were developed with varied spacing to deal with a paper shrinkage problem.
- When the paper was moistened during printing it shrank unevenly as it dried.
- To correct the problem, horizontal spacing between designs was changed.
- An open star was added to the imprint to identify what type of plate was being used.
- Star plates are also identified by 5000 series plate numbers.



Bureau Imprint, Star, & Plate Number

Reconstructed imprint for new star plates.

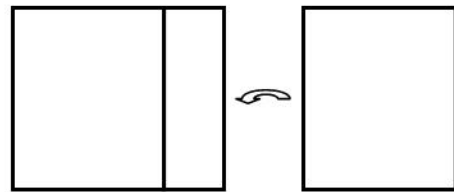


Plate Numbers

Plate numbers identify which plate the issue was printed on. Plate numbers occur twice on the average in a 500 coil.

Partial Plate Number

Usually the left margin is trimmed off closer to the frame line before being pasted together with the next strip. In this case part of the plate number is visible on the left edge of the right stamp.



Paste-Up Diagram



Separated Paste-Up

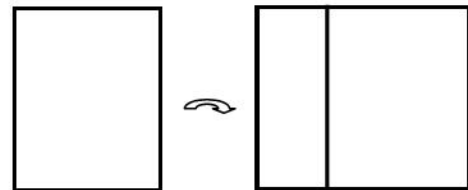
Coil Construction - Horizontal Paste-Ups

- Left margin of 400 subject pane was trimmed off.
- Right margin was left on the 400 subject pane.
- Panes were cut into strips of 20.
- The left end of the strip was pasted over the tab on the right end of the next strip of 20.



Only Recorded Plate Number with Tab on Left

This plate number pair is from a reverse paste-up strip of the one cent horizontal coil. **PF 482468**



Paste-Up Diagram

Reverse Paste-Up Construction-Horizontal Coils

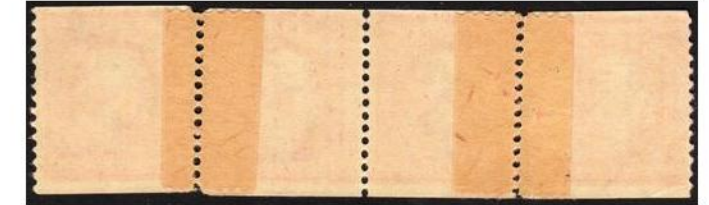
- Right margin of 400 subject pane was trimmed off.
- Left margin was left on the 400 subject pane.
- Panes were cut into strips of 20.
- The right end of the strip was pasted over the tab on the left end of the next strip of 20.

Unique Double Repair Splice

Due to the fragile nature of gauge 12 perforations, the coil would sometimes separate in production. A perforated piece of craft paper was used to repair the break. Note, the thumb print



Color photo copy of reverse side of double repair splice. Note, the perforated craft paper used to repair the two breaks.



Splice

Splice



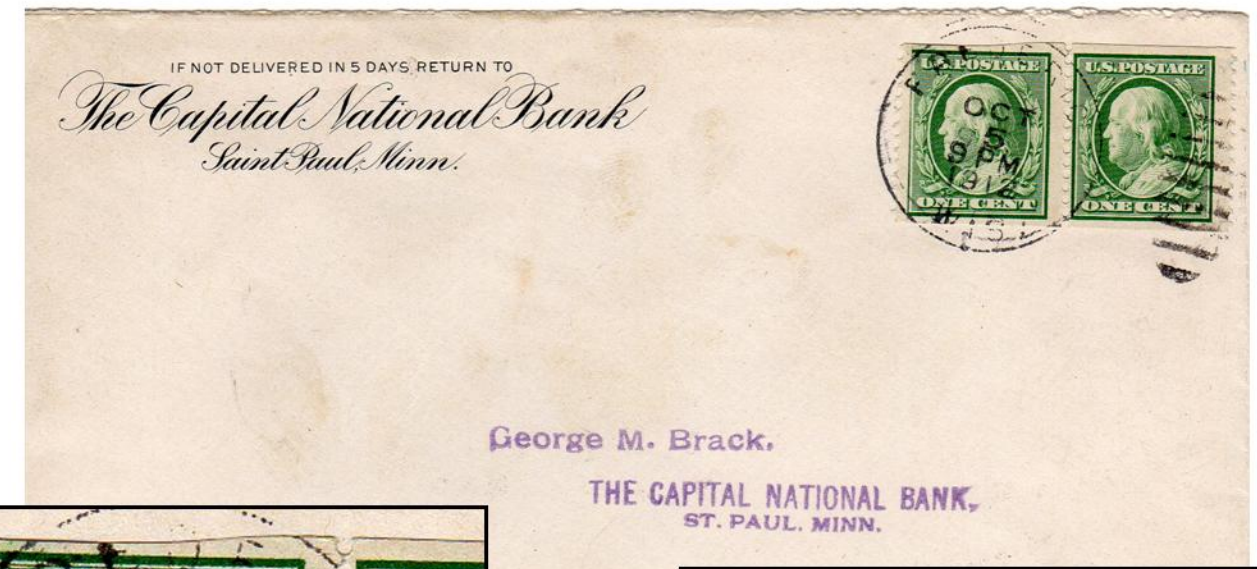
Trimmed Paste-Up

The top edge of the paste-up strip of four shows how the workers at the Bureau trimmed off the excess paper so the coil edges would line up neater. Due to the hand assembly of the coils the edges were sometimes out of alignment.



Splice Repair

Color photo copy of reverse showing splice repair with a perforated strip of stamp paper.



Trimmed Paste-Up

Note the enlarged portion of the 1 cent pair. The top left edge shows the paste-up with the top margin trimmed.



2 mm

This 1910 issue consisted of three values. The 1 and 2 cent denominations were issued in vertical and horizontal format. The 3 cent denomination was only issued in horizontal format.



"Single on Piece"

Orangeburg Coil

The Bell & Company ordered a small amount of the 3 cent perf-12 coils to use on their mailings. They sent samples of antacid pills to pharmacists and doctors to advertise their product. The company was located in Orangeburg, New York. **PF 255978**

Major production details for 1910 perf-12 series.

- 1) Bureau changed paper from double line to single line watermark.
- 2) The 1910 issue continued to be printed on the Star Plates.
- 3) Experimented with new production process of auto winding.
- 4) It was found the gauge 12 perforations were too brittle and broke.
- 5) This experiment lead to a change in perforation gauge for the next issue.

U S P S

Actual Size of Letters

Single Line Watermark

In an attempt to strengthen the paper the Bureau changed from double line watermark to single line watermark paper.

Preprinting Paper Fold



The piece of craft paper attached at the top is a partial trailer strip.

Plate Numbers

Plate numbers identify the plate the issue was printed on. In the case of the Star plate a small star was placed beside the plate number.



Trailer Strip

Leader & Trailer Strips

A piece of craft paper was attached at the beginning and end of the roll of the coil stock. Trailer strips were at the beginning and formed the center or core of the roll. Leader strips were at the end and had printed information on the coil as far as how many, 500 or 1,000, and the denomination of the stamps.

Hand Assembled Paste-Up

Due to the hand assembled process the paste-up is usually uneven and the edges do not match up neatly. The 1 cent pair shows the unevenness of the edges.



Paste-ups & Coil Construction

- During the production of this issue the Bureau started a new process in the paste-up stage.
- The 400 subject pane was slit in half and then pasted together.
- This process was continued until there were enough stamps to make a coil of 500 or 1,000.
- A piece of craft paper was attached at the beginning and end of the roll.
- This is what made up the trailer and leader strips.
- The roll was placed on a machine to slit it into 10 coils.
- The strips were automatically wound into rolls.
- The tension from the "Auto Wound" process frequently caused the coils to break.
- This problem is what lead to the change in perforation gauge for the next issue.



Auto Wound Paste-Up

The 2 cent pair shows the clean, neat, straight edges that match up exactly. This characteristic is evidence of the "Auto Wound" process. **PSE 10878**





The 1910 issue consisted of 5 values. The 1 and 2 cent denominations were issued in vertical and horizontal format. The 3, 4, and 5 cent denominations were only issued in horizontal format.

Major production changes for 1910 perf-8.5 series.

- 1) Perforation gauge changed from 12 to 8.
- 2) The new "A" plates had a 2.75 mm horizontal spacing between all designs.
- 3) The 400 subject panes were now cut into two 200 subject panes, then pasted together until there were 500 or 1,000 subjects in a row.
- 4) The roll was then slit and wound into coils of 500 or 1,000.
- 5) Entire process now took just 2 workers.

First Major Production Change

The Bureau realized the gauge 12 perforations were too brittle for the auto-wound process. When the coils were wound they broke frequently because of the tension and the paper being too weak. By changing the gauge to 8.5 it solved the problem. **It also convinced collectors that coils were indeed a different variety to collect since they were the only stamps produced with gauge 8.5 perforations.**

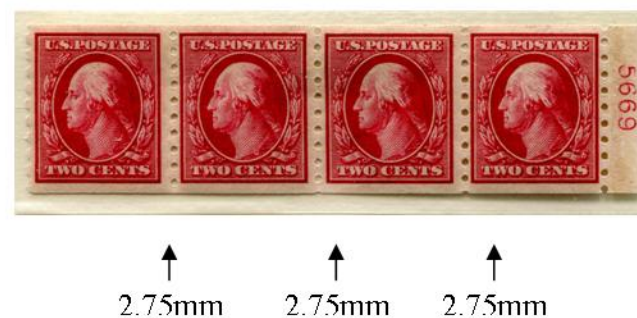


Gauge 12 Perforations



Gauge 8.5 Perforations

"A" Plate



The reconstructed 1 cent block shows the complete Bureau imprint for the 1 and 2 cent values of the "A" plates.



Plate Finisher's Initials

The plate finisher was responsible for removing imperfections from the plate. The initials occur once in the bottom right corner of a 400 subject pane.

The Bureau Imprints

The 1, 2, and 5 cent values were printed on the new "A" plates. The 3 and 4 cent values were printed on the old Star plates and the new Provisional plates. Examples of the 3 and 4 cent values on provisional plates are quite scarce.



The imprint for the 5 cent value was abbreviated. It only had the prefix, "A" and a number.



The reconstructed 4 cent strip shows the complete Bureau imprint for the old Star plates.



Provisional Plate

One of two documented 6004 plate numbers.

Plate numbers identify which issue the coil was printed from in production.

- Star plates and "A" plates: 5000 series plate numbers
- Provisional plates: 6000 series plate numbers, 3 and 4 cent values only.

The 6000 series plate numbers are quite scarce. There are 3 documented examples of the 4 cent provisional plate number. One 6002 and two 6004 plate numbers.

Guide Line Pairs

Guide line pairs have a distinct difference in measurement between stamp designs for the old Star plates and the new "A" and Provisional plates.



Star Plate
2mm



"A" Plate
2.75mm



Provisional
2.75mm

Step



"New Process"
Even edges



Third Major Production Change: Paste-Up Construction

- The previous two issues were "hand assembled" as discussed before.
- The new process started as an experiment with the 1910 perf-12 issue.
- It continued with the new perf-8.5 issue of 1910.
- The 400 subject panes were slit in half and then pasted together.
- The roll was then slit into 10 coils by the "Auto Wound" process.
- In some cases the two half sheets didn't line up and a "Step", or uneven edge occurred.
- These edges were still parallel with each other.

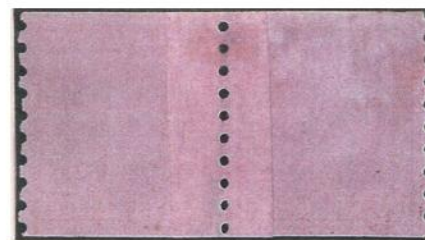
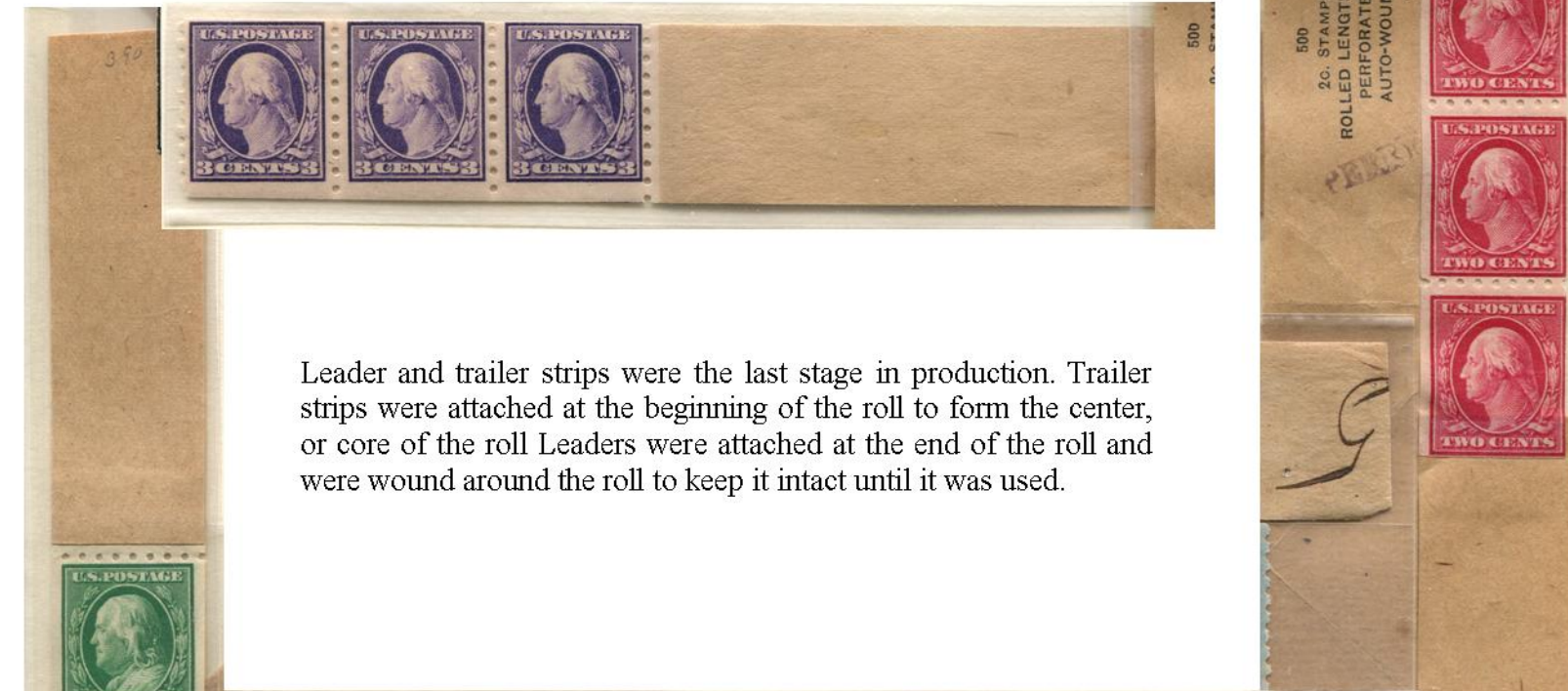


Photo copy of splice repair



Normal Paste-up

Splice Repair: The coil broke during production. To repair the coil a perforated strip of paper, or splice, was applied to the broken coil. Compare the photo copy of the splice to the normal paste-up. Splice repairs are extremely scarce on flat plate coils. **This is a very uncommon occurrence with 8.5 gauge perforations**





The 1912 issue consisted of 2 values. The 1 and 2 cent denominations were issued in both vertical and horizontal format.



Old Design



New Design

Major production changes for 1912 perf-8.5 series.

- 1) The words and numerals were used for the 1 and 2 cent denominations to conform with the Universal Postal Union, or UPU.
- 2) Washington replaced the bust of Franklin on the 1 cent denomination.
- 3) All "Star" plates were retired from use.
- 4) The "A" plates were used to produce the early issues of 1912.
- 5) The "Provisional" plates were used to produce all later flat plate coils.
- 6) The Bureau Imprint, Star, Plate Number, and Prefix "A" were used to identify the type of plate for Bureau workers.
- 7) The "Provisional" plates only needed a plate number since all other plates were retired.
- 8) The "COIL STAMPS" plates were developed for vertical coils.

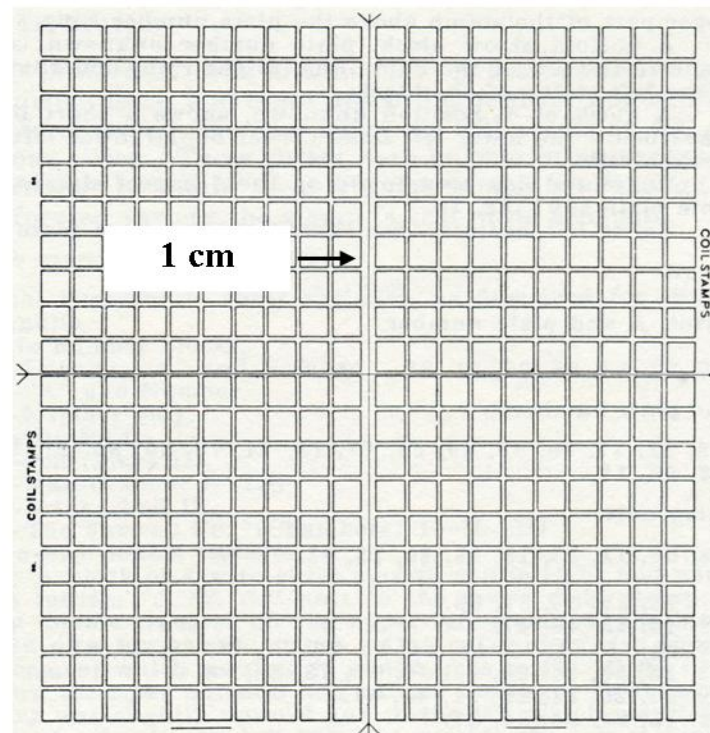


Early "A" Plate Production

Plate numbers A 5908 & 6009 are discovery copies of new unreported plate numbers.



Later "Provisional" Plate Production.



COIL STAMPS

The Bureau developed new plates for the production of vertical coils due to a spacing problem. When the 400 subject panes were cut in half for production of vertical coils, it was discovered the 10th and 11th rows were narrower when the sheets were slit into coils. To correct the problem, the Bureau widened the center row to 1 centimeter so all of the coils would be uniform in width when slit.

The imprint, "COIL STAMPS", was placed in the margins to alert Bureau employee's of the special plate.

COIL STAMPS Plates

There were 4 plates prepared and used for printing the 1 and 2 cent vertical coils.

The 1 cent plates were 6581, 6582, 6586, and 6589.

The 2 cent plates were 6568, 6570, 6571, and 6572

The "COIL STAMPS" imprint was only placed in the lower left and upper right of the pane.



Perforated 10

1914 Issue

Single Line Watermark



The 1914 perf-10 coils consisted of five values. The 1 and 2 cent denominations were printed in vertical and horizontal format while the 3, 4, and 5 cent values only came in horizontal format. The 1 and 2 cent vertical coils were printed on the COIL STAMPS plates and do not have plate numbers. The horizontal issues were all printed on the provisional plates. All previous plates had been retired from production.

Major production changes for 1914 perf-10 series.

- 1) Perforation gauge changed from 8.5 to 10.
- 2) All coils produced from the "Provisional Plates"
- 3) An extra cutting wheel was added to trim off the excess paper on the outer edges of the coil roll before it was slit.
- 4) This was the last flat plate coil series produced by the Bureau.



Perf-12

Perf-8.5

Perf-10

Perforations

The first perf-12 coils had fragile perforations and broke easily. The 8.5 gauge perforations were found to be stronger, but difficult to separate. The Bureau changed to gauge 10 in 1914 and found these perforations were just right.

1912 Issue

Step

1914 Issue

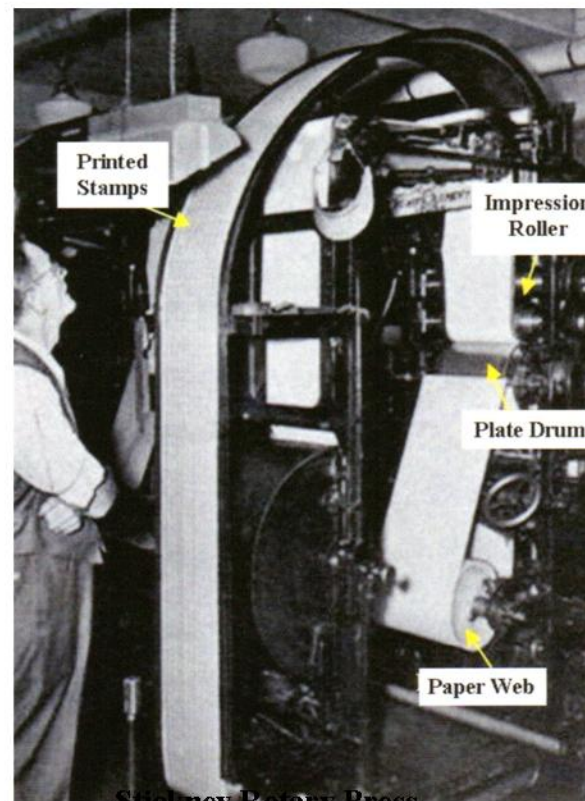
Smooth Neat Edges



Coil Construction: Cutting Wheel

To eliminate the "Step" found on some paste-ups in the 1910 and 1912 issue the Bureau added another cutting wheel on the outside to trim off the excess.

Rotary Press Coils



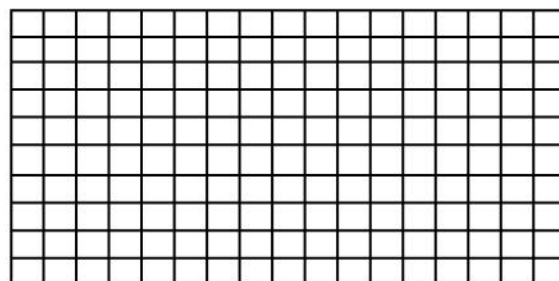
Slickney Rotary Press



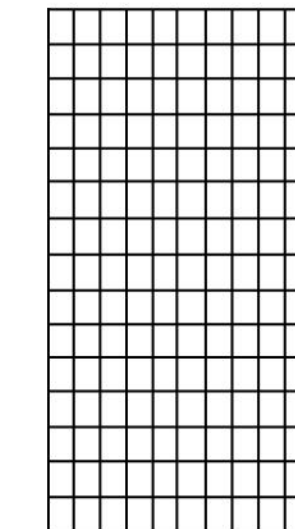
Flat Plate



Rotary Press



Horizontal Plate
Consists of a 17 x 10 layout



Vertical Plate
Consists of a 10 x 15 layout

Rotary Press Coil Production: Key Changes

- Late in 1914 the Bureau released the first rotary press coils.
- Production increased from 1 million to 6 million per day.
- Due to the plates being heated, stretched, and attached to a cylinder, the frame lines on the vertical and horizontal coils are larger than flat plate coils.
- The color of rotary press coils is different due to the inking process of rotary press production.
- The plates were whipped periodically to remove excess ink.
- This caused the color to be slightly lighter.
- This also effected the design making is not as sharp as flat plate printings.



Flat Plate

Rotary Press