

# Rubber stamp impressions: A study of defects and their significance in questioned document examination

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## Abstract

The sole objective of a forensic document examiner is to assist in discovering and proving the facts in any investigation or legal inquiry involving genuineness of a document or any part thereof. A document is usually questioned because its origin, content, or the circumstances and story of its production arouse serious suspicion as to its genuineness. It may also be adversely scrutinized simply because it displeases someone with its unexpected provisions, and a careful examination may show conclusively that the document is indeed genuine.<sup>1</sup> The increasing use of many kinds of documents is among

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<sup>1</sup> *Scientific Examination of Questioned Documents*, eds. J.S. Kelly, B.S. Lindblom, Boca Raton, FL 2006.

the characteristics of civilization. Taking into account the opportunities for fraud this offers and the imperfection of human nature, it is not strange that now and then a document appears which does not belong in the genuine class.

As it relates to document examination, rubber stamp identification is closely akin to handwriting and typewriting analysis.<sup>2</sup> Identifying a particular stamp, type-, or handwriting and determining when it was performed, its possible source, and circumstances of production – these are the chief aims of any initial examination. Rubber stamps may be individualized at any stage of the manufacturing process, even back-tracking to imperfections in the metal typefaces,<sup>3</sup> but more commonly, unique characteristics are the effect of use, misuse, wear, and even age of the stamp.<sup>4</sup> The present study discusses the steps in manufacturing a rubber stamp and the causes of defects leading to its identification, as well as attempts to examine the stamp impressions on the basis of the defects induced by these factors.

**Keywords:** forensic examination, rubber stamps, stamp impressions, defects, manufacturing techniques.

The present study pertains to defects in different types of rubber stamps and their significance in forensic questioned document examination.

## Types of rubber stamps

Rubber stamps have been around since the mid-1800s, but various forms of stamps – ones made of clay, wood, animal hides, or metal – have been in use for much longer.<sup>5</sup> Modern-day rubber stamps typically are mounted onto a wooden or plastic handle and come with a separate stamp pad used to ink them before application. Rubber stamps are a very economical and simple way of copying whatever text or image one deems worth repeating.<sup>6</sup>

<sup>2</sup> E.F. Alford, G.R. Stangohr, “Synthetic signatures”, *Journal of Forensic Sciences* 10, 1965, pp. 77–85.

<sup>3</sup> G. Herbertson, *Rubber Stamp Examination*, Colorado 1997.

<sup>4</sup> M.A. Casey, “The individuality of rubber stamps”, *Forensic Science International* 12, 1978, no. 2, pp. 137–144; A. Herkt, “Rubber stamps, manufacture and identification”, *Journal of the Forensic Science Society*, 25, 1985, no. 1, pp. 23–28.

<sup>5</sup> T.O. Sloane, *Rubber Hand Stamps and the Manipulation of Rubber*, New York 1891.

<sup>6</sup> ASTM International, *The Standard Guide for Examination of Rubber Stamps*, ASTM E 2289-03, 2003.

They can be divided into three types.

**Self-inking stamps.** These convenient and durable stamps have a pad built right onto the machine. They flip around and hit a pad with each stamping motion, giving thousands of good-quality impressions before having to be re-inked. They are best for extensive stamping, easy to operate, since they only require pressing down.<sup>7</sup>

**Pre-inked stamps.** More convenient than self-inking stamps due to the lack of a pad – push down the stamp mount and the impression will appear. They are the best in terms of quality and durability, and are easy to refill with oil-based inks. Recommended for logos as well as signature, notary, and professional stamps.<sup>8</sup>

**Traditional rubber stamps.** Stylish, eco-friendly, with a varnished wooden handle. These stamps can be made with custom text, logo, or image.

## Defects occurring in a rubber stamp

Individual defects most commonly occur through the use or abuse of the stamp. They may be caused by many factors, including dirt, paper fiber accumulated with nicks and cuts, edge wear and breakdown, or stamp distortion.<sup>9</sup> The characteristics observed by the forensic document examiner in stamp impressions are influenced by the die material, whether the ink is water- or oil-based, the size of the stamp, the type of paper and its interaction with the ink, as well as the individual defects.

## Method

In the present study, 50 different types of rubber stamp impressions were collected, and the following observations were made:

– There is a difference between impressions made by traditional or self-inking stamps and pre inked stamps.

<sup>7</sup> M.A. Casey, op. cit.; J.S. Kelly, *Forensic Examination of Rubber Stamps*, Springfield, IL 2002.

<sup>8</sup> *Scientific Examination...*

<sup>9</sup> Ministry of Human Resource Development, P-08, *Questioned Document*, module 21. *Rubber Stamp and Seals*, [http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp\\_content/S000016FS/P000695/M011505/ET/1516250384FSC\\_P8\\_M21\\_e-text.pdf](http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000016FS/P000695/M011505/ET/1516250384FSC_P8_M21_e-text.pdf).

- No definite judgment regarding the type of stamp can be made while examining a questioned impression.

- The die material of the stamp can be studied.

- Vulcanized rubber and the photopolymer are the most common materials used for traditional and self-inking stamp dies. However, several characteristics were observed regardless of these materials:

1. even ink coverage;

2. a ring of darker ink outlining individual letters, occurring due to the relief of the printing area squeezing the ink out of the ink line edge. This is difficult to observe if the entire surface of the letter is heavily inked.

3. no indentation in the ink line;

4. rounded beginnings and endings of letters;

5. sharp angles and intersection of two lines being filled with ink;

6. some patchy areas within the inked impression;

7. uneven outline of the letters.

Because the die of a pre-inked stamp is soft and has some flexibility, its impression slightly differs from ones made by a traditional or self-inking stamp. Its characteristics include:

1. clear and concise detail;

2. individual characters showing even ink saturation throughout;

3. the inside and outside of the letters not showing any heavier ink line;

4. edges of the letters showing feathering or bleeding of ink;

5. no indentation in the ink line;

6. blurring or distortion in small-typed text.

Microscopic examination of the stamp die and the impression was done, with the inclusion of both direct and oblique lighting. Direct lighting helped in providing even illumination of the examined area in order to determine the manufacturing process used to create the die. Oblique light narrowed the focus of the examination, making it possible to detect even the smallest of defects and determine whether they were permanent or transitory.

After a thorough stepwise examination, an impression-to-impression comparison was conducted. The researchers made numerous impressions from the submitted stamp on a substrate similar to the material

hosting the questioned impression. The stamp had to be cleaned in order to obtain impressions free from transit materials – however, it was photographed beforehand to document the condition in which it was received.

## Significance of rubber stamps on questioned documents

Affixation of rubber stamps plays a vital role in proving the genuineness of a document in question – to determine the authenticity of a document in question, the expert must examine it very minutely and check for any signatures or writing on the affixed stamp. In Figures 2 and 3, it was observed that the rubber stamp was affixed prior to the writings, i.e., the rubbers stamps were affixed on the blank papers and the writings and signatures have been written subsequently.

Figures 1 and 4 show rubber stamps which, when examined under a stereo microscope, showed striations at the edges of the rubber stamp and breakages occurring at intervals, proving these to be fabricated.

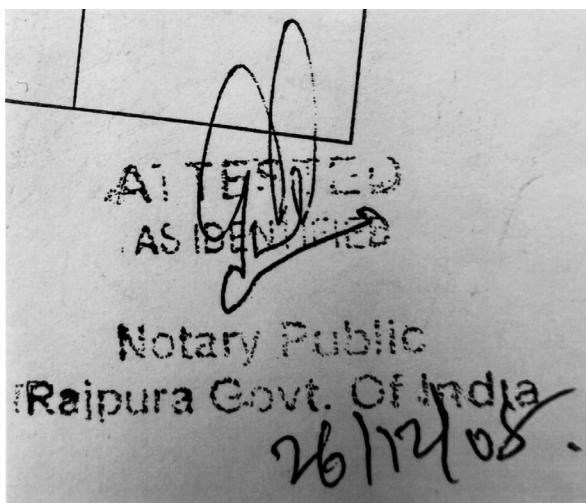


Figure 1

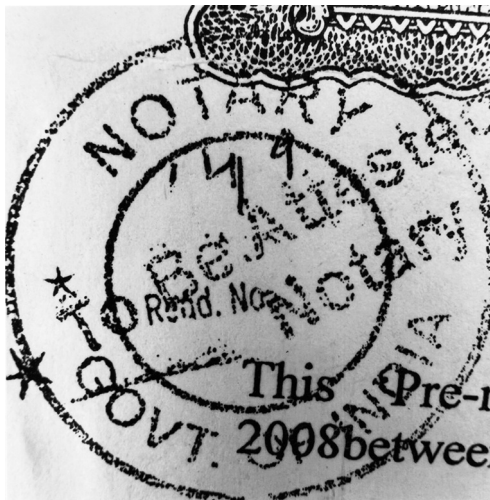


Figure 2

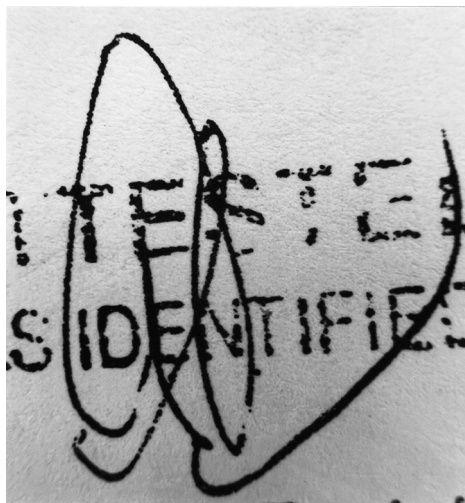


Figure 3

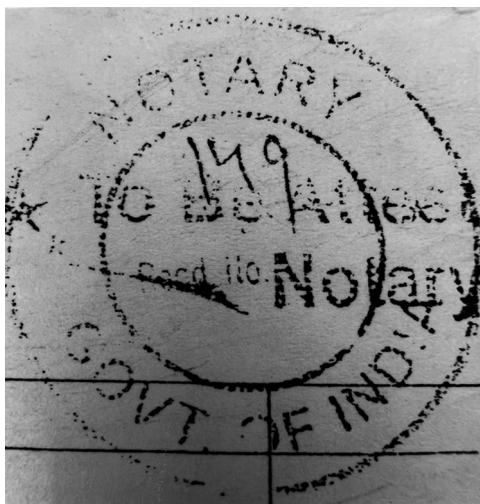


Figure 4

## Conclusion

After detailed analysis of all types of stamp impressions, it was concluded that when a sharp impression on a document is ignored by a forensic expert, it leaves out a great deal of evidential information which could strengthen even a simple case. Additionally, in order to classify or determine the source of the defect, the document examiner must have the suspected stamp – they cannot make assumptions in this regard based on examining the impression. The significance of the defects can be determined by identifying the stage at which they occurred within the manufacturing process.

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