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Public Awareness: Identification of Security Features of Different Bank Cheques

Sehrawat SS[*1], Kaur G[2] and Singh A[3]

[1]PhD Scholar, Department of Cardio thoracic and vascular surgery, PGIMER, Chandigarh, India
[2]Research Scholar, Department of Forensic Science, Chandigarh University, Punjab, India
[3]Student of M.Sc., Chandigarh University, Punjab, India

[*]**Corresponding author:** Sehrawat SS, PhD Scholar, Department of Cardio thoracic and vascular surgery, PGIMER, Chandigarh, India, Tel: +91-9877532988, E-mail: gurleen2597@gmail.com

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Abstract

A lot of evidence has been left by the criminals while commencing offenses. Fraud in the banks is easier due to less knowledge of banking documents. Cheques serve to be the most valuable evidence that can provide a lot of crucial information and therefore acts as a forensic tool. Cheques from different banks can be distinguished with the help of certain features present in them such as bank logo, watermarks, design and pattern of cheque, etc. Every cheque was different from each other with respect to the features like position and number of watermarks, fluorescence, voids pattern, micro lettering, size and dimensions of the cheques. Security features are the vital line of defence against cheque fraud. Such features are not present on the scanned cheques; hence this study will help to identification of the genuine and questioned cheque. To avoid from deception and to aware general people, a detailed study was performed on the basis of certain parameters that include physical examination, observation under different lightning source and microscopy moreover, various methods that will help in revealing the contents present on the cheque. Cheques were seen under various light conditions such as UV light, transmitted light, and oblique light to visualize various features sometimes not visible to the naked eye. No such study of the identification of security features of different Indian bank cheques has been reported so far. The present study will be focussing on various security features on cheque and their detection.

Keywords: Cheque; Fraud; Public Awareness; Security Features; Examination; Cheque Feature

Introduction

In order to check the authenticity of the document, the investigators need to examine or verify the document that can be used as evidence in court of law. These documents which are questioned are known as "questioned documents". With the help of various examinations, examiners can gather the information regarding the authentication of document, authorship, counterfeit money or cheques, examination of handwritten or printed documents such as wills. The examination of these documents provides key information that will narrow down the investigation. In questioned documents, ink, paper, writing instruments, seals or stamps provides the essential clues that will help to solve the several fraud cases. Cheque is a negotiable document, produced by bank for demanding payment from the account of account holder. Main reason for origin of cheque is to avoid carrying large amount of money. Moreover many companies, institutions, organisations have engaged themselves in many other areas that requires a huge amount of transaction, so in order to simplify the process ,cheques has been originated. The guidelines for money transactions are laid by RBI which is a governing body. The Reserve Bank of India (RBI), popularly known as the banker's bank, is India's central bank. The RBI is in charge of the Indian government's monetary and banking policy. In compliance with the Reserve Bank of India Act, 1934, the Reserve Bank of India (RBI) was created on April 1, 1935. Since 1937, the Reserve Bank has been headquartered in Mumbai.RBI make changes in rules and regulations from time to time according to the needs. Earlier, due to lack of security features and simple appearance of cheque makes a layman vulnerable to forgery. Today, many recent and modern techniques have been introduced to forge a cheque such as scanning printing instrument. The forger scans the whole document and imitates it by using the advanced printers that produce the same copy as that of original one. In 2013, RBI decided to implement cheque truncation scheme (CTS). According to which the banks has denied to accept the old cheque that does not contain any feature due to security issues and the consumer has to switch over new cheque book containing security features that avoid forgery. It is one of the most prevailing documents whose chances of being copied is maximum, therefore they are embedded with some security features [1].

Common security features of cheques

Features that are incorporated into the cheques while manufacturing and printing that help to prevent counterfeiting. These are added on a piece of paper to differentiate it from the normal paper. These features play an important role in preventing counterfeiting of documents. These features need to be known to layman so that they can identify the document on their own. The features incorporated serve the purpose of keeping the document authenticated. Some of them are listed as [2]:

Cheque design: Each and every bank has its own cheque design along with their logos and background printing from which a person can identify to which bank the particular cheque belongs. Each cheque contains information about bank name, its branch, branch address and code, holograms etc [3].

Ink Used: When a genuine cheque comes in contact with water, the color dissolves and provides bleeding effect. The ink used while printing the cheques are water soluble that get dissolved in normal water. However it has been suggested to use the solvent ink that prevent dissolution of ink [4].

Micro Lettering: Security feature not visible with naked eye, so magnifying glass is used to make it visible. Most of the banks do not have such features [5].

Watermarks: One of the best security features that cannot be counterfeited. Earlier no watermarks are present on bank cheques, if present they are usually the logo of paper manufacturing. Most of the banks do not have such features [6].

Void pantograph: Another initiative designed to prevent the use of photocopied cheques is Copyvoid, which is a printing process. It is a unique rectangular image on the left side below account number. It consist of criss cross lines in a unique pattern .Cheques produced from this system has a word VOID printed on them during its manufacturing process. It is not visible to naked eye. When the cheque is photocopied with color copiers, word VOID appears to render the cheque useless [7].

Security fibre: This has been incorporated in order to keep the cheque protective against forgery. It glows under UV light source. Today multi tone fibres are also available in security documents [8].

MICR Code: This is magnetic ink character recognition code. This code is present at the bottom of cheque which help to identify the issuer bank. It act as security bar which protects the transaction. Digits present on the barcode indicate important information such as bank branch code, PIN code, or the city code. The technology used in banking sector helps to ease processing and clearance of cheques as well as other documents. Since each cheque has a unique set of MICR number which is helps in identification of issuing authority so as to speed up process of clearing [9].

The major problem faced by the cheque manufactures is to build the security feature that cannot be photocopied. The measures taken are use of ultraviolet light on cheques, fine line printing and some complex designs. All cheques must be printed on specially designed security paper which will help to distinguish it from photocopied. The type of ink used on the cheque is water soluble and hence prevent culprits from attempting to erase the handwritten information. Sometimes it is possible to print a hologram on the surface of cheque that prevents it from copying [10].

The present study has been conducted to identify the security features of different bank cheques: original and scanned cheques using different methods that include examination through UV light transmitted light and stereomicroscopy [11].

Materials and Methods

The study has been carried out on cheques from different banks and collected from family and relatives. Scanned cheques were also examined scanned by cam scanner. Magnifying glass, scale, UV chamber, stereomicroscope was used for the examination of cheques [12].

(i) Physical Examination
Cheque has been visualised with the naked eye in normal lightening conditions in order to identify the various features or information that is available on it such as; bank logos, name of the bank, Length and breadth of the cheque and a unique feature i.e. bleeding effect (dissolution of ink when water is dropped on it) [13].

(ii) Examination under UV light
Different bank cheques were examined under UV light source, which requires a UV chamber. Cheques were seen under long and short UV light at 254nm, in order to visualize the watermarks or the bank logos that will fluoresce when seen in such lightening conditions. The patterns examined were bank's name, rupee column, security fibres etc [14].

(iii) Examination through transmitted light
After examining under UV light, transmitted light was passed through the cheques. Watermarks were examined that depicted bank's name, or logo. During the examination most of the bank cheques containing watermarks were visible from the reverse side of cheques [15].

(iv) Microscopic examination
Stereomicroscope was used for the examination of cheques. Stereomicroscope, provides the 3-D image of the specimen. Cheques were observed under 40X. Microlettering was clearly visible under stereomicroscope. These features can also be seen with the help of magnifying glass. If any cheque is photocopied or scanned, these micro letters will not be visible. Paper fibres were also seen under stereomicroscope. Complex networks of colored paper fibres are visible under 40X [16].

(v) Examination of scanned cheque

Cam-scanner was used to scan the cheque and the print was taken on A4size paper. After print above given examination was repeated on scanned cheques. Cheques were scanned in order to identify the features that cannot be copied. These scanned copies of cheques were compared to the original one. A normal A4 size paper is used for imitating the cheque [17]. The observations are as follows:-

1. Examination under UV –light source: under UV light the scanned or the copy of cheque does not show any watermarks that fluoresce in original one, but it was observed as blue all over.

2. Micro lettering – The micro lettering that are generally present on original cheque, was found to be absent in scanned copy of cheque or partially visible in blurred form.

3. Cheque background – The background of the scanned cheque depends upon type of paper used for imitating the cheque, the differences found in in paper fibres as they seemed to be distorted.

Result and Discussion

After examining different bank cheques it has been observed that different bank cheque carrying different security features. Hence, different parameters were considered for the examination of genuine bank cheques and scanned bank cheques. Physical examination was done to check the length, breadth and bleeding effect of the cheque. A small portion of cheque was treated with few drops of water which results in dissolution of ink gets dissolve. The cheques were seen under UV light, shows fluorescence of watermarks. The watermarks include both bank name and logo. Optical fibres are also visible under UV light. They are also of different colours. They can be scattered throughout the cheque and in some the cheques they are present at particular positions. Cheques were seen through transmitted light. Some of the bank logos are visible along with the "CTS-INDIA". These are present at different positions and a number of logos are also different in different bank cheques. Cheques were seen under stereomicroscope in order to get a 3-D images of the Micro lettering incorporated at the time of manufacturing. This Micro lettering is present below the pay column, rupees column and amount box. These include the name of the bank in very small size that is not visible to the naked eye. Different micro lettering was present on different bank cheque. Scanned cheques were also examined. The bleeding effect was absent in scanned copy of cheque, absence of watermarks and whole cheque appears to be blue, nothing was observed when seen through transmitted light. The paper fibres are scattered and the network is distorted. The distortion of paper fibres depend upon the type of paper used. These features are compared to the original one and comparison can be made. Some of the features of cheques can't be copied through, but it possible that features can be simulated by other method [18-20].

Conclusion

From this study it can be concluded that Indian cheques have a number of security features by which authenticity of cheque can be made. Every cheque shows different watermarks, differentarea of fluorescence and bank logos present at different positions in each cheque. If any cheque was tried to be copied with the help of scanner, the result would not be the same. As the basic pattern appears to be same so there needs to be emphasized by the government that some more features must be introduced for better and safe transactions. These methods enable the paying bank to detect whether a received cheque is genuine or not. There should be more awareness among the layman to find the difference between genuine and fraud cheque. This will help in reduction of counterfeiting to cheque. There is crucial information on cheques that can help to identify the forged cheque. Due to advancement in technology, various scanners are being used to imitate the cheques. But a slight variation provides the capability of identifying manipulated area of the cheque. To an end note, this study aware general peoples to save them from cheque fraud by analysing some common features.

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