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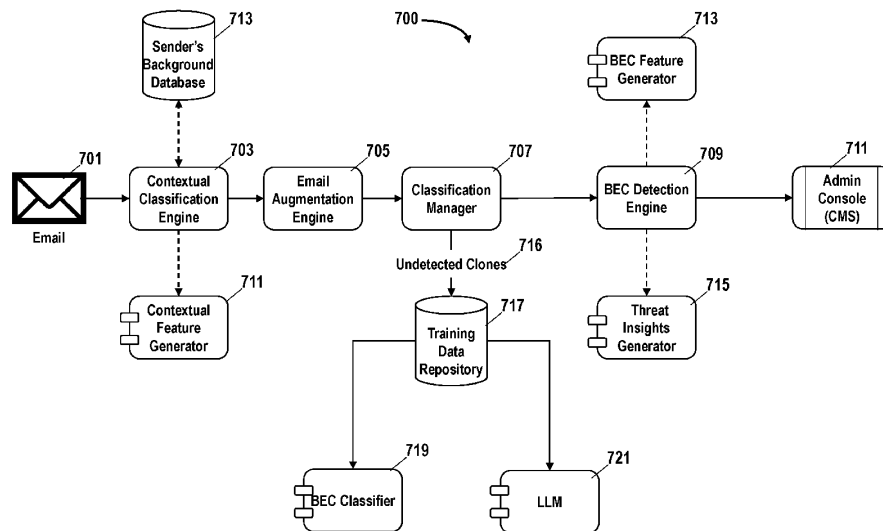


FIG. 7

(57) Abstract: Provided herein are systems and methods for detecting a phishing attack. The method comprises: processing an original message to determine whether the original message is suspicious or benign, upon determining the original message is suspicious, generating multiple copies of the original message for detecting a phishing attack, where the multiple copies are varied from the original message in least one of tones, formats, and writing styles, and the multiple copies are generated to be similar to a training dataset that is utilized to train a phishing attack detection engine; and processing the multiple copies and the original message by the phishing attack detection engine to determine whether the original message is malicious or benign. One or more copies from the multiple copies that are not identified as malicious are utilized to further train the phishing attack detection engine automatically.

[Continued on next page]

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