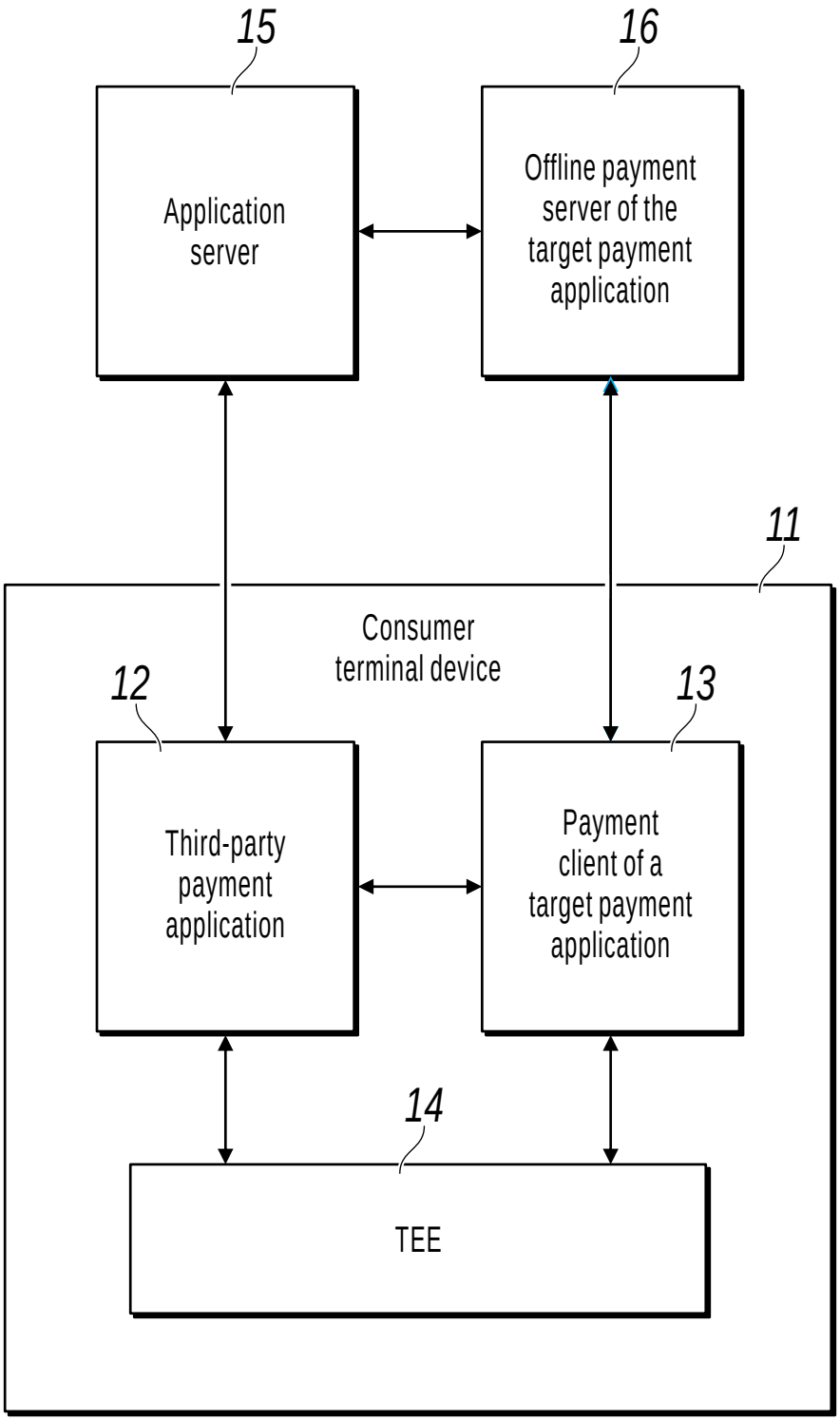

15
16
Application server
Offline payment server of the target payment application
11
Consumer terminal device
12
13
Third-party payment application
Payment client of a target payment application
14
TEE

FIG. 1

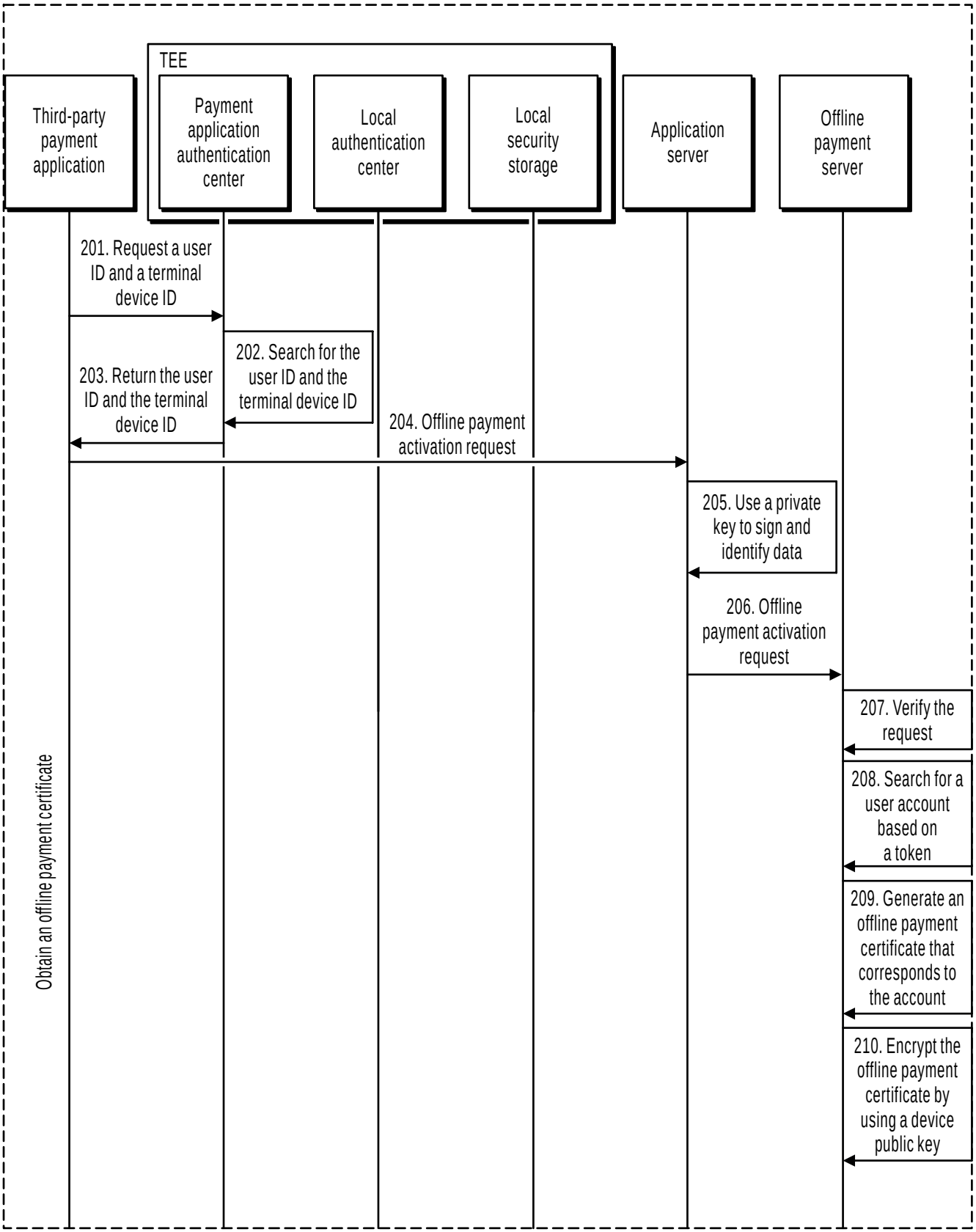

TEE
Third-party payment application
Payment application authentication center
Local authentication center
Local security storage
Application server
Offline payment server
201. Request a user ID and a terminal device ID
202. Search for the user ID and the terminal device ID
203. Return the user ID and the terminal device ID
204. Offline payment activation request
205. Use a private key to sign and identify data
206. Offline payment activation request
207. Verify the request
208. Search for a user account based on a token
209. Generate an offline payment certificate that corresponds to the account
210. Encrypt the offline payment certificate by using a device public key
Obtain an offline payment certificate

FIG. 2A

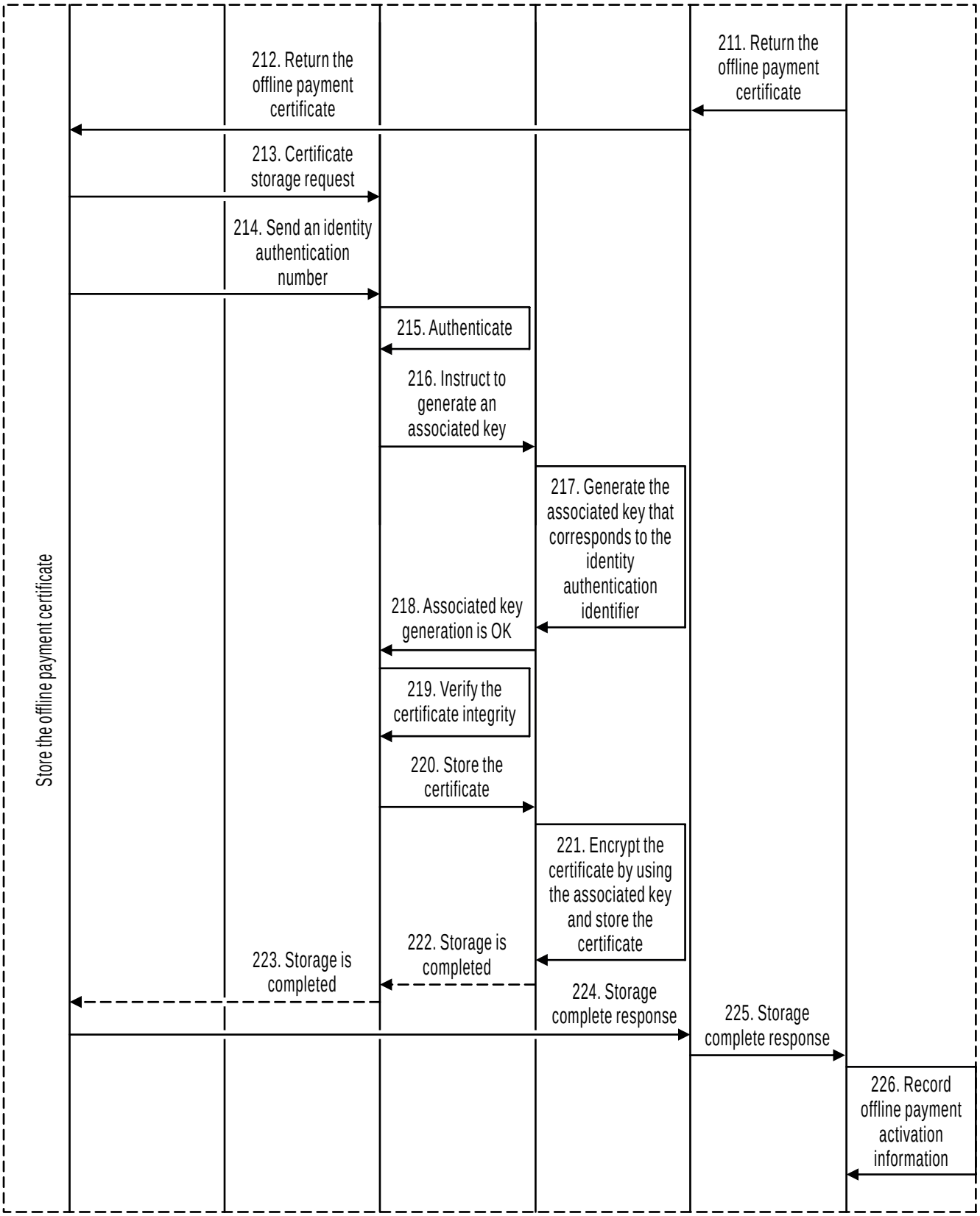

Store the offline payment certificate
211. Return the offline payment certificate
212. Return the offline payment certificate
213. Certificate storage request
214. Send an identity authentication number
215. Authenticate
216. Instruct to generate an associated key
217. Generate the associated key that corresponds to the identity authentication identifier
218. Associated key generation is OK
219. Verify the certificate integrity
220. Store the certificate
221. Encrypt the certificate by using the associated key and store the certificate
222. Storage is completed
223. Storage is completed
224. Storage complete response
225. Storage complete response
226. Record offline payment activation information

FIG. 2B

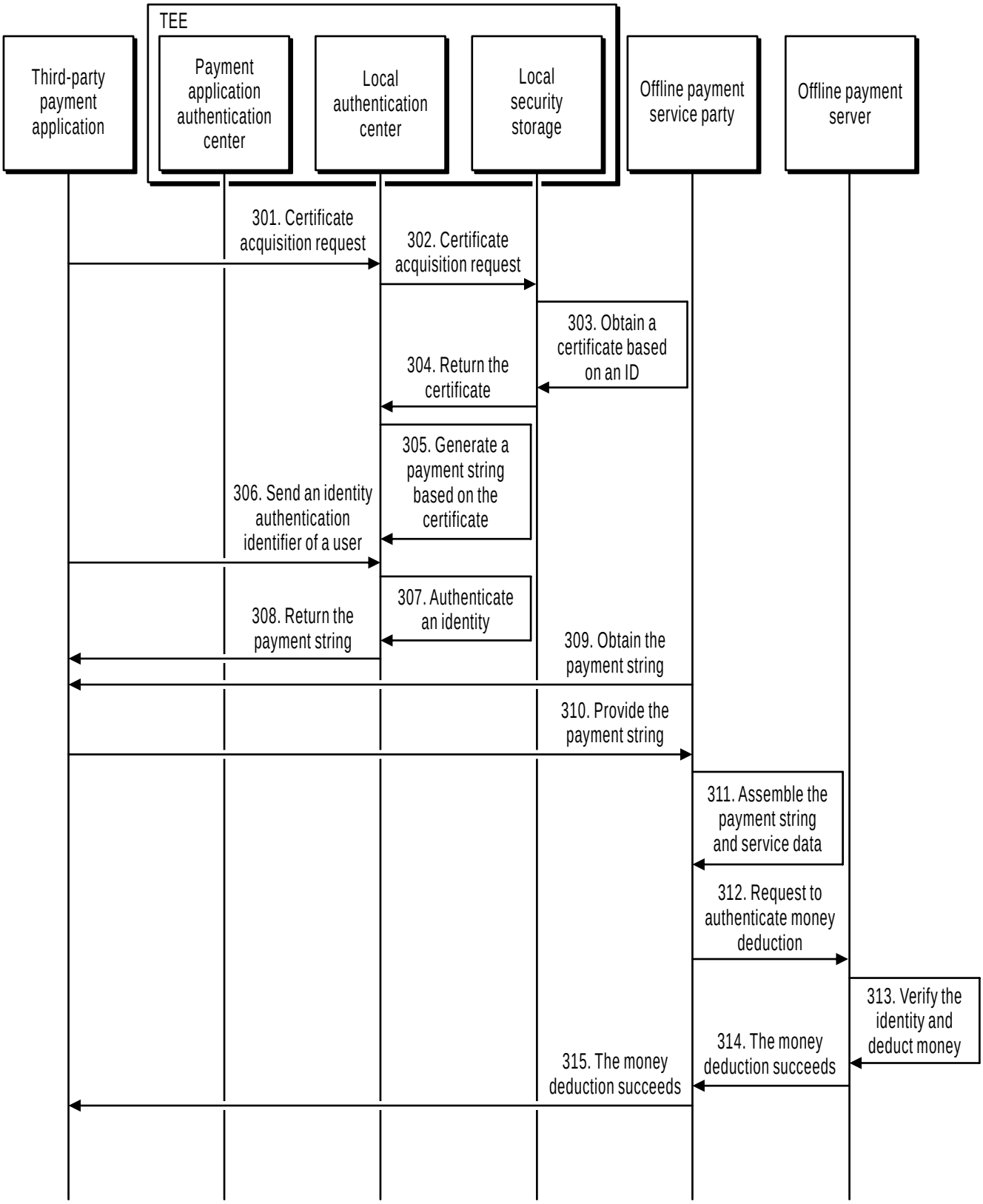

TEE
Third-party payment application
Payment application authentication center
Local authentication center
Local security storage
Offline payment service party
Offline payment server
301. Certificate acquisition request
302. Certificate acquisition request
303. Obtain a certificate based on an ID
304. Return the certificate
305. Generate a payment string based on the certificate
306. Send an identity authentication identifier of a user
307. Authenticate an identity
308. Return the payment string
309. Obtain the payment string
310. Provide the payment string
311. Assemble the payment string and service data
312. Request to authenticate money deduction
313. Verify the identity and deduct money
314. The money deduction succeeds
315. The money deduction succeeds

FIG. 3

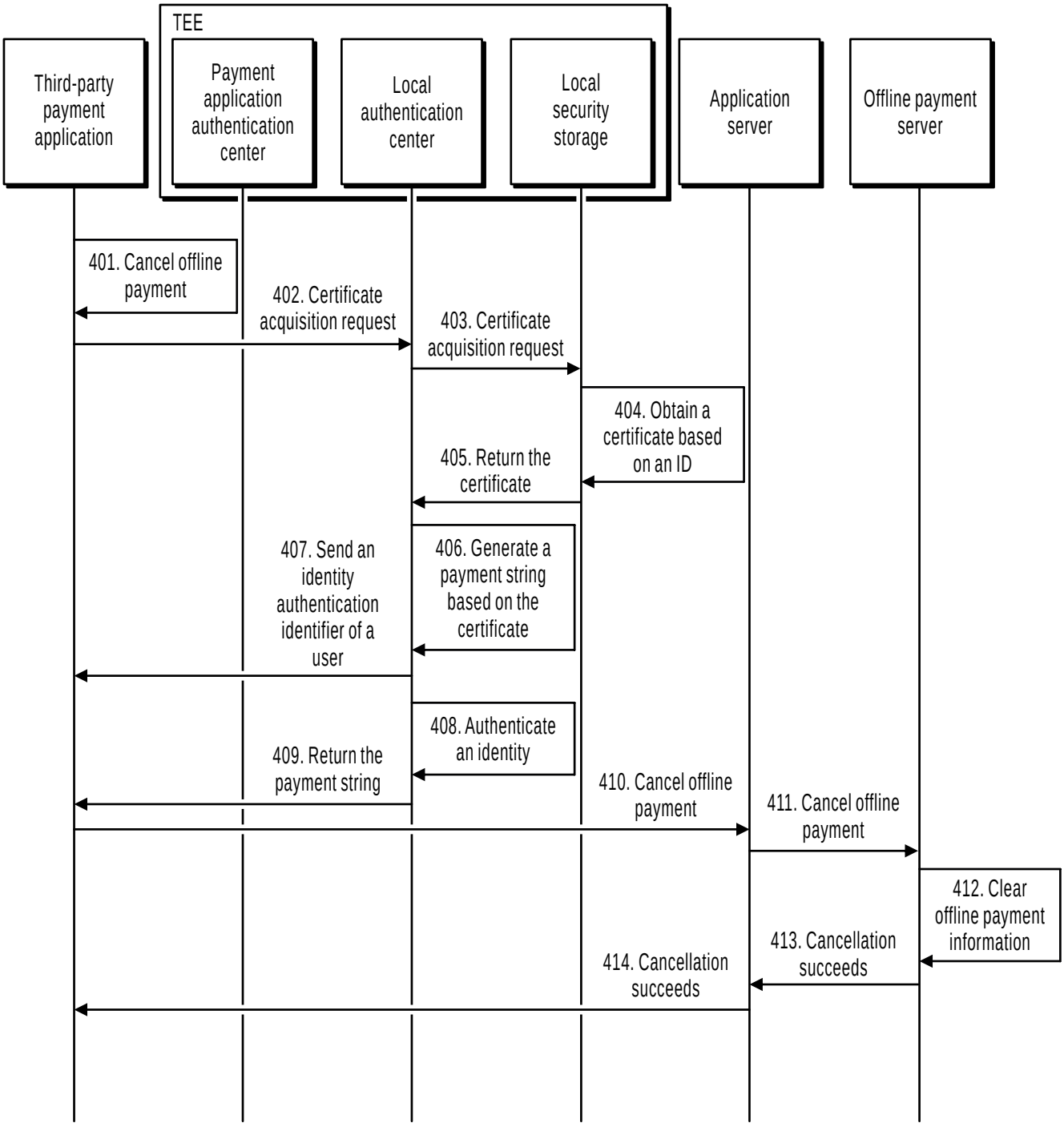

TEE
Third-party payment application
Payment application authentication center
Local authentication center
Local security storage
Application server
Offline payment server
401. Cancel offline payment
402. Certificate acquisition request
403. Certificate acquisition request
404. Obtain a certificate based on an ID
405. Return the certificate
406. Generate a payment string based on the certificate
407. Send an identity authentication identifier of a user
408. Authenticate an identity
409. Return the payment string
410. Cancel offline payment
411. Cancel offline payment
412. Clear offline payment information
413. Cancellation succeeds
414. Cancellation succeeds

FIG. 4

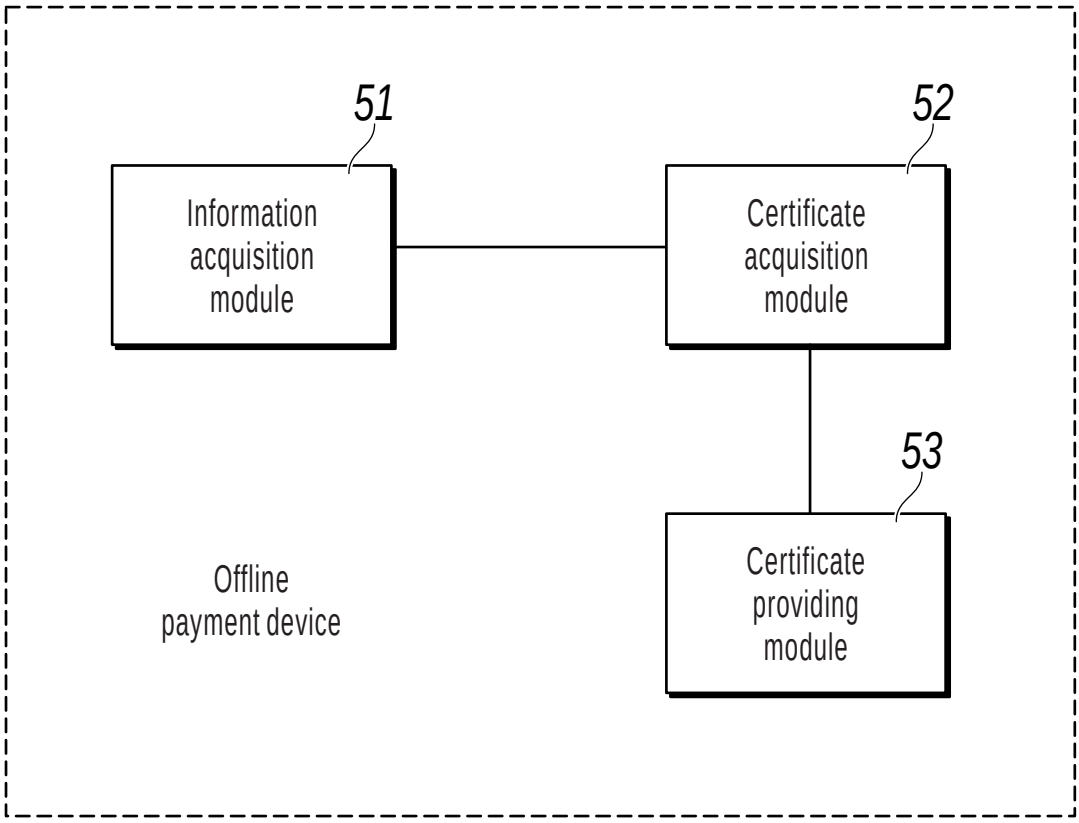

51
52
Information acquisition module
Certificate acquisition module
53
Certificate providing module
Offline payment device

FIG. 5

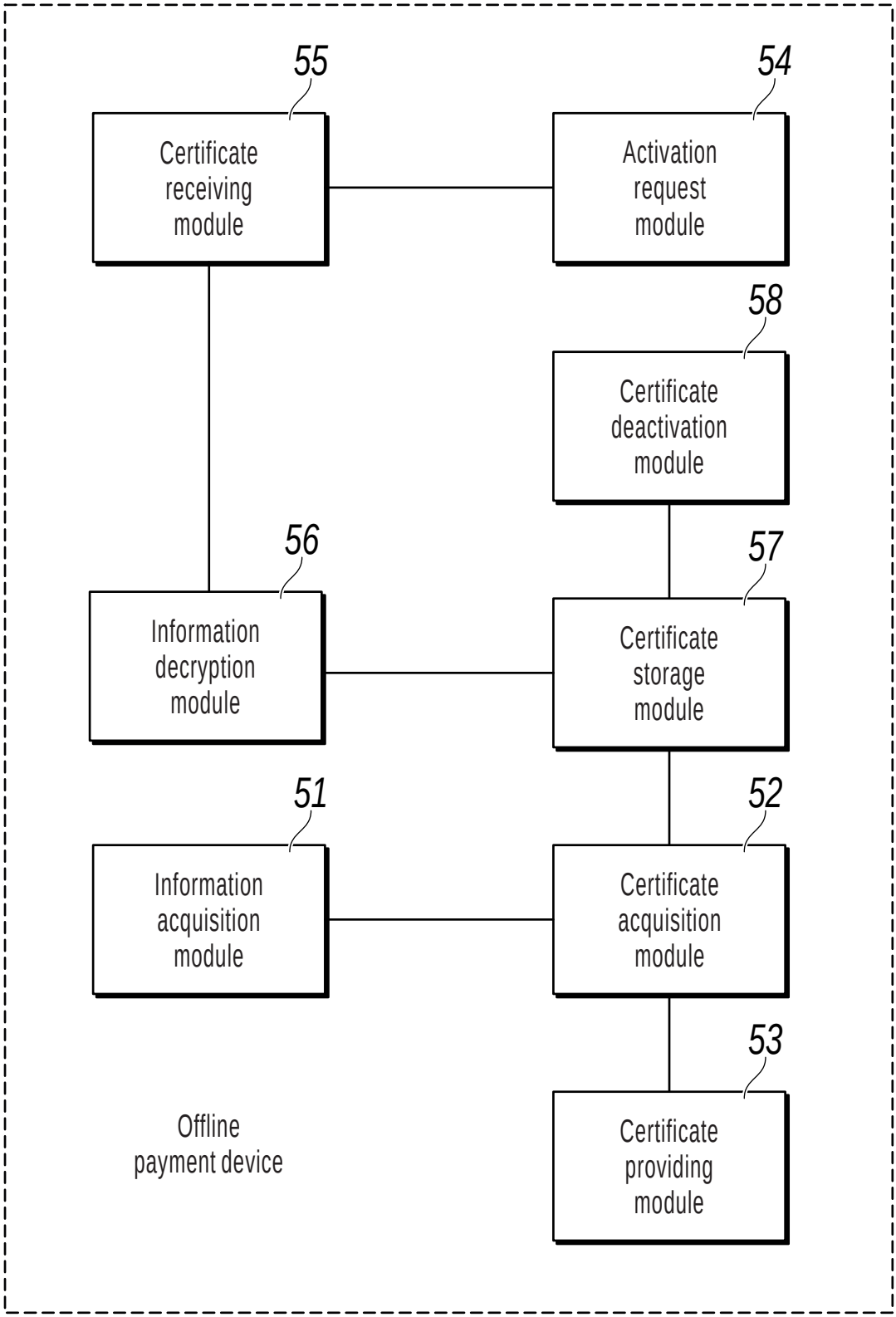

55
Certificate receiving module
54
Activation request module
58
Certificate deactivation module
56
Information decryption module
57
Certificate storage module
51
Information acquisition module
52
Certificate acquisition module
53
Certificate providing module
Offline payment device

FIG. 6

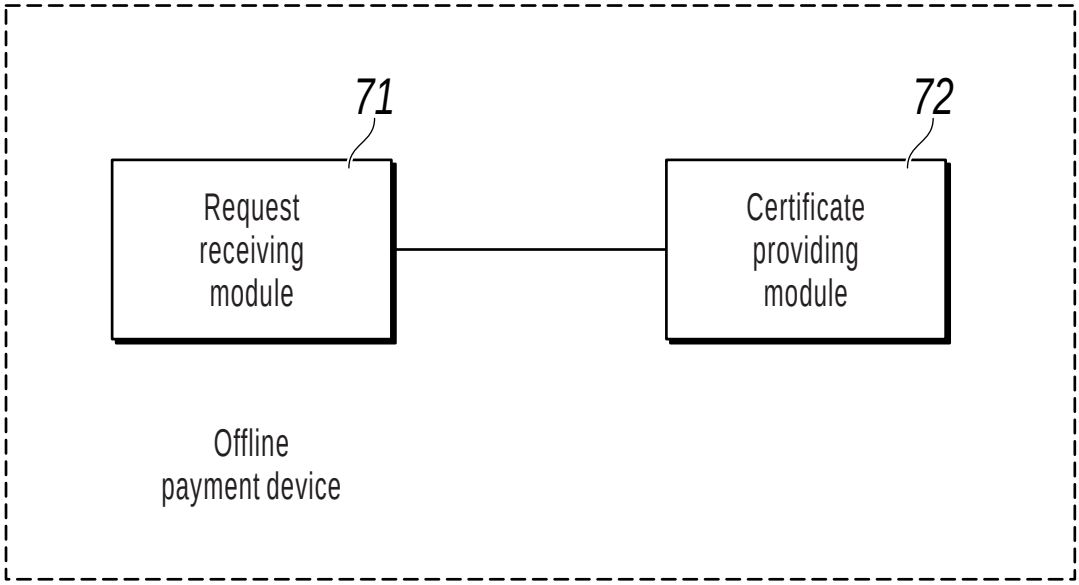

71
72
Request receiving module
Certificate providing module
Offline payment device

FIG. 7

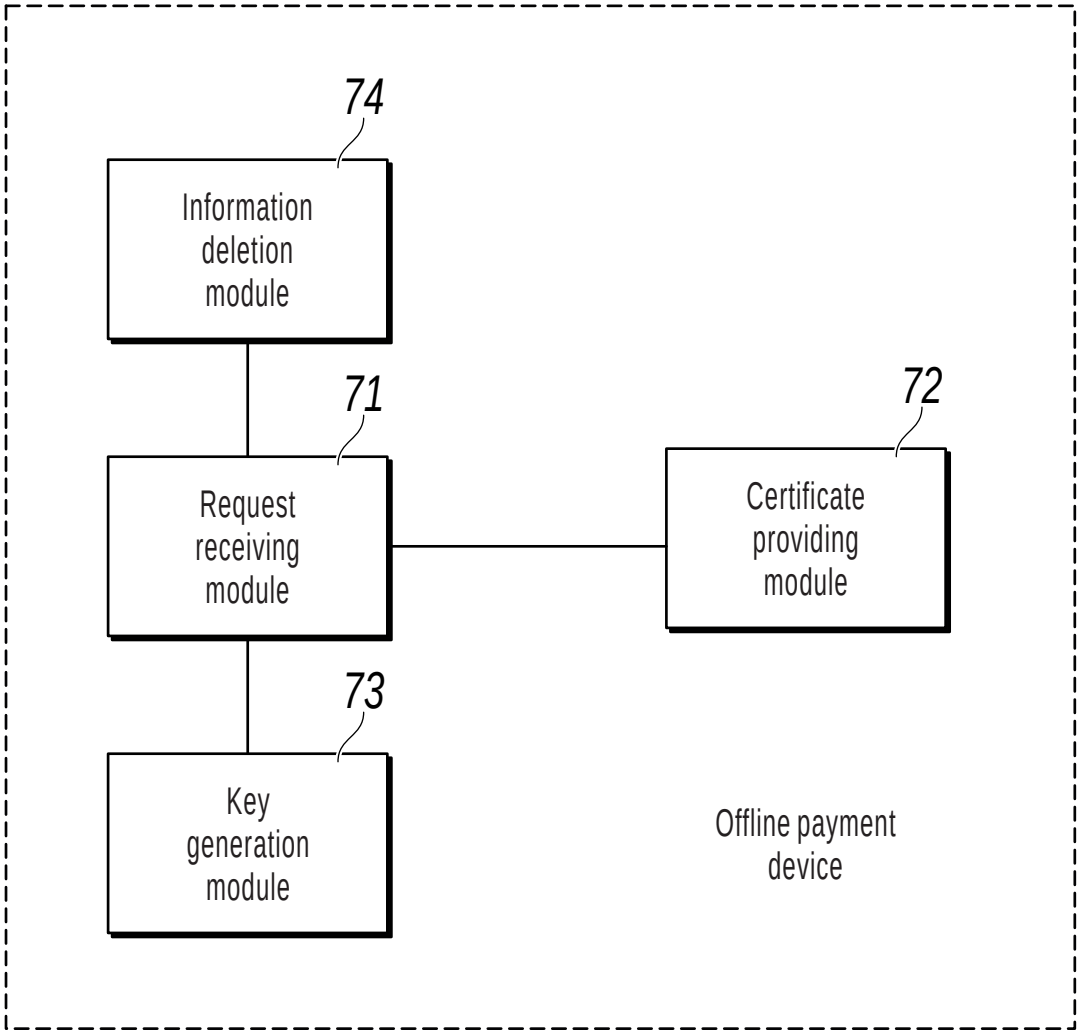

74
Information deletion module
71
Request receiving module
72
Certificate providing module
73
Key generation module
Offline payment device

FIG. 8