Claims:

1. A method for authenticating a graphical watermark, comprising:

acquiring identity information of a graphical watermark by scanning the graphical watermark;

constructing a watermark reference according to the identity information;

detecting a plurality of graphical markers of the graphical watermark, acquiring position and pose information of each graphical marker, wherein the plurality of graphical markers carry the position and pose information and further carry the identity information of the graphical watermark;

pairing up the detected graphical markers according to the position and pose information of each graphical marker, and computing a similarity or correlation score of a watermark pattern bounded by a pair of graphical markers according to the watermark reference; and

determining whether the graphical watermark is authentic according to the similarity or correlation score;

wherein each graphical marker does not have a rotation symmetry.

2. The method according to claim 1, wherein the acquiring identity information of a graphical watermark by scanning the graphical watermark comprises: acquiring and combining identity information split and encoded in the plurality of graphical markers of the graphical watermark.

3. The method according to claim 1, wherein the graphical watermark comprises a QR code, and the acquiring identity information of a graphical watermark by scanning the graphical watermark comprises: acquiring the identity information from a server by scanning the QR code of the graphical watermark.

4. The method according to claim 1, wherein the acquiring position and pose information of each graphical marker comprises:

acquiring parameters from the server according to the identity information, wherein the parameters comprise an amount of zoom, and position and pose information of the graphical markers.

5. The method according to claim 1, wherein the computing a similarity or correlation score of a watermark pattern bounded by a pair of graphical markers according to the watermark reference

comprises:
computing a perspective transformation matrix according to coordinates of two corners of a first graphical marker which are adjacent to a second graphical marker and coordinates of two corners of the second graphical marker which are adjacent to the first graphical marker, wherein the first graphical marker and the second graphical marker form the pair of graphical markers;
correcting a perspective distortion of a sub-region in the graphical watermark bounded by the pair of graphical markers by using the perspective transformation matrix;
acquiring a corresponding sub-region in the watermark reference according to the position and pose information of the pair of graphical markers;
computing the similarity or correlation score between the sub-region in the graphical watermark in which the perspective distortion is corrected and the corresponding sub-region in the watermark reference.

6. The method according to claim 1, wherein the similarity or correlation score is a percentage of values which are the same between the watermark reference and the graphical watermark in which the perspective distortion is corrected.

7. The method according to claim 1, wherein the determining whether the graphical watermark is authentic according to the similarity or correlation score comprises:
comparing the similarity or correlation score to a preset threshold, and determining the graphical watermark is authentic if the similarity or correlation score is greater than the preset threshold.

8. An apparatus for authenticating a graphical watermark, comprising:
an acquisition module configured to acquire identity information of a graphical watermark by scanning the graphical watermark;
a construction module configured to construct a watermark reference according to the identity information;
a detection module configured to detect a plurality of graphical markers of the graphical watermark and acquire position and pose information of each graphical marker, wherein the plurality of graphical markers carry the position and pose information and further carry the identity information of the

graphical watermark;

a computation module configured to pair up the detected graphical markers according to the position and pose information of each graphical marker, and compute a similarity or correlation score of a watermark pattern bounded by a pair of graphical markers according to the watermark reference; and

a determination module configured to determine whether the graphical watermark is authentic according to the similarity or correlation score;

wherein each graphical marker does not have a rotation symmetry.