Claims:

1. A method of producing an information code by an information code producing apparatus, a plurality of types of cells being arranged in a predetermined code area of a medium, each of the cells functioning as a unit of information, ~~characterized in that:~~ wherein

the method comprises:

arranging, in the code area, a specification pattern region in which predetermined-shape specification patterns are arranged in the code area, the specification patterns including patterns indicating a position of the code area;

arranging, in the code area, a data recording region in which data is recorded by ~~a~~ the plurality of types of ~~the~~ cells in the code area, the data recorded in the data recording region being subjected to error correction performed based on error correction codes;

arranging a free space ~~at a position located~~ outside an area occupied by the specification pattern region in the code area, the free space having a size larger in area than ~~the~~ a single cell which is one of ~~among~~ the cells, the free space being arranged using a method which is different from a method of recording the data into the data recording region, at least one of a recording process recording, into the free space, data other than the cells and a displaying process displaying, in the free space, a design other than designs composed of the cells being allowed ~~in the free space~~, the free space being excluded from the error correction; and

recording format information at predetermined positions in the code area in a specified format ~~configuration~~, the predetermined positions being outside the free space, the format information including information showing exclusion of the free space from being error-corrected.

2. The method of claim 1, ~~characterized in that~~ wherein

the specification pattern region, the data recording region, and an error correction code recording region are arranged in the code area, the error correction codes being recorded in the error correction code ~~recoding~~ recording region by the plurality of types of cells, and

the free space is arranged, in the code area, at a position located outside areas occupied by the specification pattern region, the data recording region, and ~~an~~ the error correction code recording region ~~in the code area, the free space being excluded from error correction being performed using the error~~

~~correction~~ codes.

3. The method of claim 1 or 2, ~~characterized in that~~ wherein the method comprises

using an arrangement-position information recording section in which arrangement position information is recorded to specify arrangement positions in the code area, a plurality of data words being arranged at the arrangement positions, the data words expressing object data being interpreted, the object data being to be recorded in the data recording region,

arranging the plurality of data words in the code area according to the arrangement position information recorded in the arrangement-position information recording section.

4. The method of claim 1, ~~characterized in that~~ wherein,

in arranging the free space in the code area, an arrangement of cells is configured in the code area such that a predetermined type of mask pattern is reflected in the arrangement of cells.

5. The method of any one of claims 1 – 3 and 4, ~~characterized in that~~ wherein the method comprises

displaying, in the free space, at least one of a design and information, the design being a figure, a pattern, a hue or a combination thereof, the information being expressed by one or more symbols.

6. An information code formed on a medium, a plurality of types of cells being arranged in a predetermined code area of the medium, each of the cells functioning as a unit of information, ~~characterized in that~~ wherein:

a specification pattern region is arranged in the code region, predetermined-shape specification patterns being arranged in the specification pattern region, the specification patterns including patterns indicating a position of the code area;

a data recording region is arranged in the code region, data being recorded in the data recording region by ~~a~~ the plurality of types of the

cells, the data recorded in the data recording region being subjected to error correction performed based on error correction codes; ~~and~~

a free space is arranged ~~at a position located~~ outside an area occupied by the specification pattern region in the code area, the free space having a size larger in area than ~~the~~ a single cell which is one of ~~among~~ the cells, the free space being arranged using a method which is different from a method of recording the data into the data recording region, at least one of a recording process recording, into the free space, data other than the cells and a displaying process displaying, in the free space, a design other than designs composed of the cells being allowed ~~enabled in the free space~~, the free space being excluded from the error correction; and

format information is recorded at predetermined positions in the code area in a specified format, the predetermined positions being outside the free space, the format information including information showing exclusion of the free space from being error-corrected.

7. The information code of claim 6, ~~characterized in that~~ wherein

the specification pattern region, the data recording region, and an error correction code recording region are arranged in the code area, the error correction codes being recorded in the error correction code ~~recoding~~ recording region by the plurality of types of cells, and

the free space is arranged, in the code area, ~~at a position located~~ outside areas occupied by the specification pattern region, the data recording region, and ~~an~~ the error correction code recording region ~~in the code area, the free space being excluded from error correction being performed using the error correction codes~~.

8. The information code of claim 6 or 7, ~~characterized in that~~ wherein

~~format information is recorded at a predetermined position in the code area in a predetermined format configuration, and~~

data words expressing object data to be interpreted in the data recording region are arranged in the code area based on a predetermined arrangement position information.

9. The information code of claim 8, characterized in that wherein an arrangement of the cells is configured in the predetermined positon in the code area such that a predetermined type of mask pattern is reflected in the arrangement of cells.

10. The information code of any one of claims 6 - 9, characterized in that wherein, in the free space, at least one of a design and bits of information is displayed, the design being a figure, a pattern, a hue or a combination thereof, the information being expressed by one or more symbols.

11. An information code reader, reading an information code provided on a medium, a plurality of types of cells being arranged in a predetermined code area of the medium, each of the cells functioning as a unit of information, ~~characterized in that~~ wherein:

the information code comprising

a specification pattern region arranged in the code area, predetermined-shape specification patterns being arranged in the specification pattern region, the specification patterns including patterns indicating a position of the code area;

a data recording region arranged in the code area, data being recorded in the data recording region by ~~a~~ the plurality of types of the cells ~~in the data recording region~~, the data recorded in the data recording region being subjected to error correction performed based on error correction codes; ~~and~~

a free space arranged ~~at a position located~~ outside an area occupied by the specification pattern region in the code area, the free space having a size larger in area than ~~the~~ a single cell which is one of ~~among~~ the cells, the free space being arranged using a method which is different from a method of recording the data into the data recording region, at least one of a recording process recording, into the free space, data other than the cells and a displaying process displaying, in the free space, a design other than designs composed of the cells being allowed ~~enabled in the free space~~, the free space being excluded from the error correction; and

format information is recorded at predetermined positions in the code area in a specified format, the predetermined positions being outside the free space, the format information including information showing exclusion of the free space from being error-corrected, and

the information code reader comprising

an imaging unit imaging the information code; and

an interpreter interpreting the data recorded in the data recording region, based on contents recorded in the data recording region and the format information, when the information code is imaged by the imaging unit.

12. The information code reader of claim 11, ~~characterized in that~~ wherein the specification pattern region, the data recording region, and an error correction code recording region are arranged in the code area, the error correction codes being recorded in the error correction code ~~recoding~~ recording region by the plurality of types of cells, and

the free space is arranged, in the code area, ~~at a position located~~ outside areas occupied by the specification pattern region, the data recording region, and ~~an~~ the error correction code recording region ~~in the code area, the free space being excluded from error correction being performed using the error correction codes~~.

13. The information code reader of claim 11 or 12,

~~characterized in that~~ wherein

the information code includes

~~format information recorded at a predetermined position in the code area in a predetermined format configuration,~~

data words expressing object data being interpreted in the data recording region arranged in the code area based on a specified arrangement position information, and

the information code reader comprises

a correspondence information recording device recording correspondence information corresponding to the arrangement position information and specifying arrangement positions of the plurality of data words in the code area; and

a determination device determining whether or not the predetermined positions of the code area are formatted in the specified format configuration when the imaging unit images the information code,

wherein the interpretation device is configured to specify positions of the data words in the code area based on the correspondence information recorded in the correspondence information recording region when the determination device determines that the predetermined positions have the specified format configuration, and interpret the object data being interpreted.

14. The information code reader of claim 13, ~~characterized in that~~ wherein

the information code is configured such that cell arrangements at the predetermined positions are subjected to masking with a predetermined type of mask pattern;

the determination device is configured to determine whether or not the predetermined positions are subjected to masking with the predetermined type of mask pattern when the imaging unit images the information code; and

the interpretation device is configured to interpret the object data being interpreted provided that ~~that~~ the predetermined positions are subjected to masking with the predetermined type of mask pattern.

15. The information code reader of claim 13 or 14,

characterized in that wherein

the arrangement position information defines correspondence between the sequential data words produced when the object data being interpreted are expressed by the data words and the arrangement positions of the sequential data words in the code area;

the correspondence information defines correspondent positons of the sequential data words in another type of code when the sequential data words are expressed by the other type of code which differs in type from the information code; and

the interpretation device is configured to interpret the other type of code in a state where the sequential data words are replaced with the correspondent positions in the other type of code, the correspondent positions being defined using the correspondence information, when the determination device determines that the predetermined positions have the specified format configuration.

16. A system which uses an information code, characterized in that the system comprises comprising:

an information code producing apparatus producing an information code provided on a medium, a plurality of types of cells being arranged in a predetermined code area of the medium, each of the cells functioning as a unit of information when the information is provided; and

an information code reader reading the information code produced by the information code producing apparatus,

wherein the information code producing apparatus is configured to produce the information code such that the information code comprises

a specification pattern region arranged in the code area, predetermined-shape specification patterns being arranged in the specification pattern region, the specification patterns including patterns indicating a position of the code area;

a data recording region arranged in the code area, data being recorded by a the plurality of types of the cells in the data recording region, the data recorded in the data recording region being subjected to error correction performed based on error correction codes; and

a free space is arranged ~~at a position located~~ outside an area occupied by the specification pattern region in the code area, the free space having a size larger in area than ~~the~~ a single cell which is one of the cells, the free space being arranged

using a method which is different from a method of recording the data into the data recording region, at least one of a recording process recording, into the free space, data other than the cells and a displaying process displaying, in the free space, a design other than designs composed of the cells being allowed ~~enabled in the free space~~, the free space being excluded from the error correction; and

format information is recorded at predetermined positions in the code area in a specified format, the predetermined positions being outside the free space, the format information including information showing exclusion of the free space from being error-corrected, and

wherein the information code reader comprises

an imaging unit imaging the information code produced by the information code producing apparatus,

wherein the information code reader is configured to interpret the data recorded in the data recording region based on contents of the data recording region and the format information, when the imaging unit images the information code.

17. The system of claim 16, ~~characterized in that~~ wherein

the information code producing apparatus is configured to produce the information code such that

the specification pattern region, the data recording region, and an error correction code recording region are arranged in the code area, the error correction codes being recorded in the error correction code ~~recoding~~ recording region by the plurality of types of cells, and

the free space is arranged, in the code area, ~~at a position located~~ outside areas occupied by the specification pattern region, the data recording region, and ~~an~~ the error correction code recording region ~~in the code area, the free space being excluded from error correction being performed using the error correction codes~~.

18. The system of claim 16 or 17, ~~characterized in that~~ wherein

the information code producing apparatus comprises

a data acquiring device acquiring object data being interpreted;

an arrangement-positon information recording device recording arrangement position information necessary for specifying arrangement positons in the code area, a plurality of code words expressing the object data being arranged at the arrangement positions; and

a data-recording region producing device producing the data recording region, such that, when the free space is formed inside the code area, format information is recorded at predetermined positions of the code area in a specified format configuration and data words expressing the object data are arranged based on the arrangement

positon information recorded in the arrangement-position information recording region, and

the information code reader comprises

a correspondence information recording device recording correspondence information corresponding to the arrangement position information and specifying arrangement positions of the plurality of data words in the code area;

a determination device determining whether or not the predetermined positions of the code area are formatted in the specified format configuration when the imaging unit images the information code; and

an interpretation device specifying positions of the data words in the code area based on the correspondence information recorded in the correspondence information recording region when the determination device determines that the predetermined positions have the specified format configuration, and interpreting the object data.

19. The system of claim 18, ~~characterized in that~~ wherein

the data-recording region producing device is configured to the cell arrangements at the predetermined positons such that the predetermined positions are subject to a masking with a predetermined type of mask pattern when the free space is formed in the code area;

the determination device is configured to determine whether or not the predetermined positions are subjected to masking with the predetermined type of mask pattern when the imaging unit images the information code; and

the interpretation device is configured to interpret the object data provided that ~~that~~ the predetermined positions are subjected to masking with the predetermined type of mask pattern.

20. The system of claim 18 or 19, ~~characterized in that~~ wherein

the arrangement position information defines correspondence between the sequential data words produced when the object data are expressed by the data words and the arrangement positions of the sequential data words in the code area;

the correspondence information defines correspondent positons of the sequential data words in another type of code when the

sequential data words are expressed by the other type of code which differs in type from the information code; and

the interpretation device is configured to interpret the other type of code in a state where the sequential data words are replaced with the correspondent positions in the other type of code, the correspondent positions being defined using the correspondence information, when the determination device determines that the predetermined positions have the specified format configuration.

21. The system of any one of claims 16 – 20, ~~characterized in that~~ wherein

the information code producing apparatus is configured to produce the information code such that in the free space, at least one of a design and bits of information is displayed, the design being a figure, a pattern, a hue or a combination thereof, the information being expressed by one or more symbols.