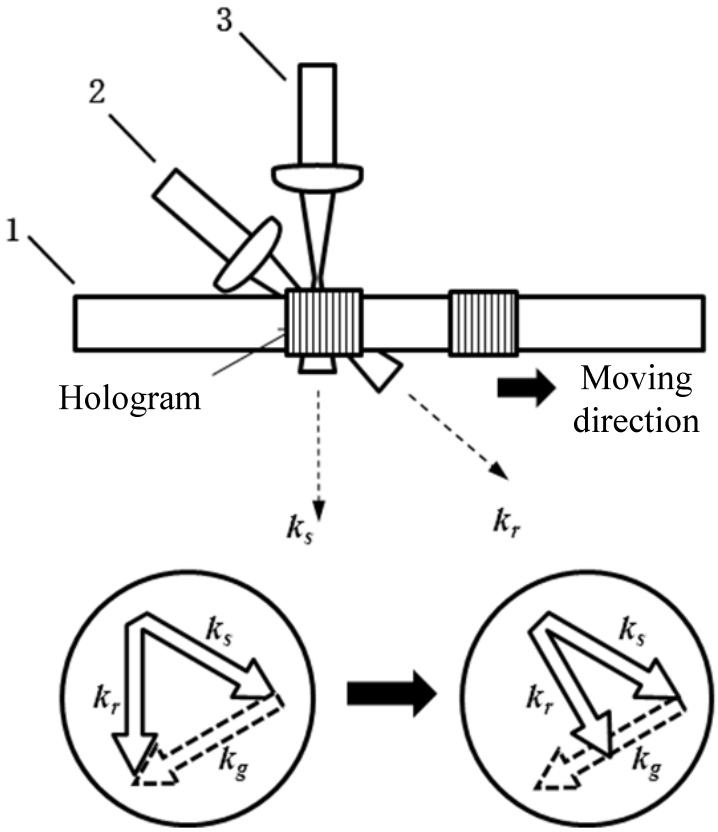
3
2
1
Hologram
Moving direction
k_s
k_r
k_s
k_r
k_g
k_s
k_r
k_g

FIG. 1

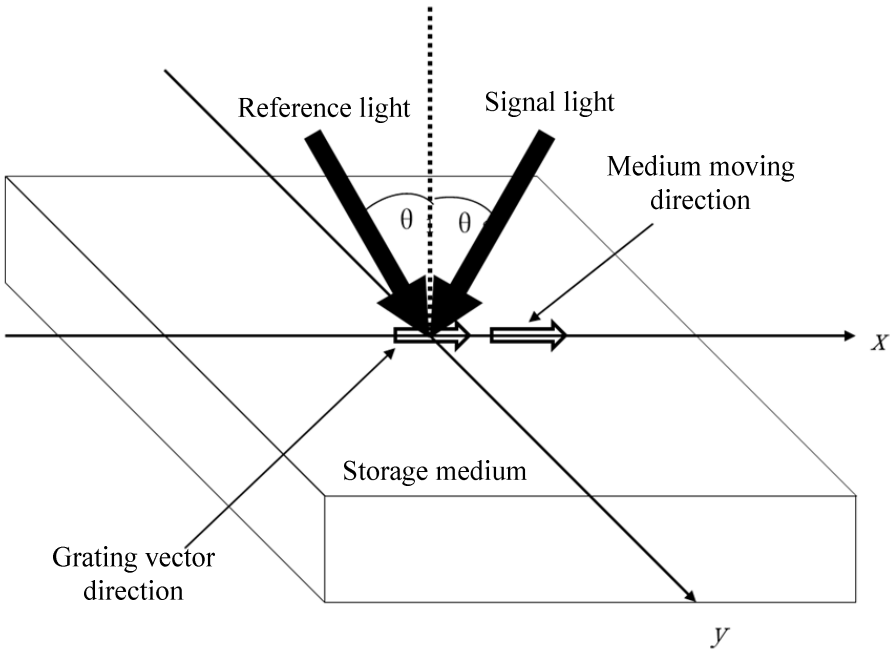
Reference light
Signal light
Medium moving direction
θ
θ
X
Storage medium
Grating vector direction
y

FIG. 2

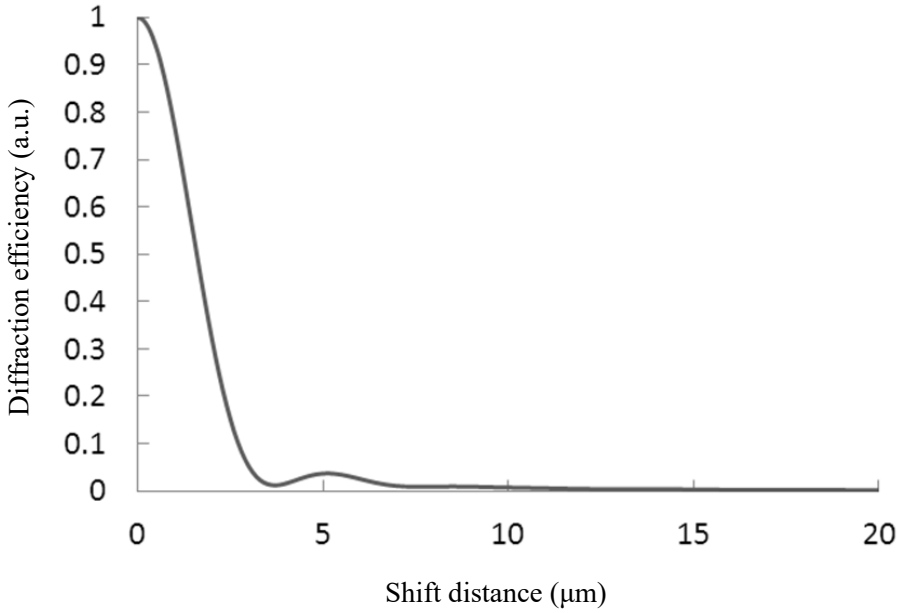
Diffraction efficiency (a.u.)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
Shift distance (μm)

FIG. 3

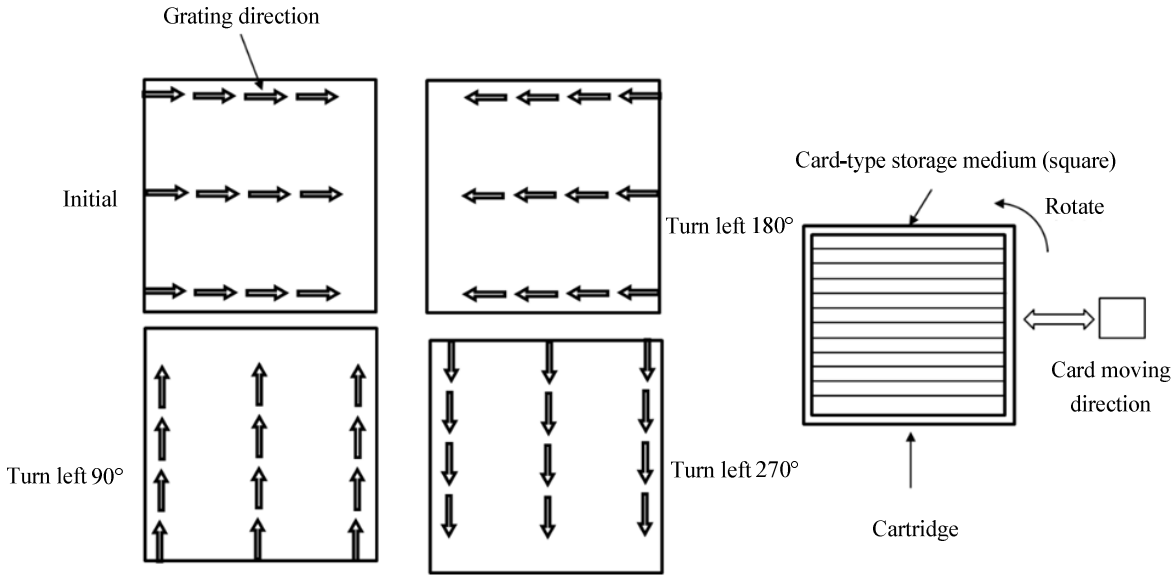
Grating direction
Initial
Turn left 90°
Turn left 180°
Turn left 270°
Card-type storage medium (square)
Rotate
Card moving direction
Cartridge

FIG. 4

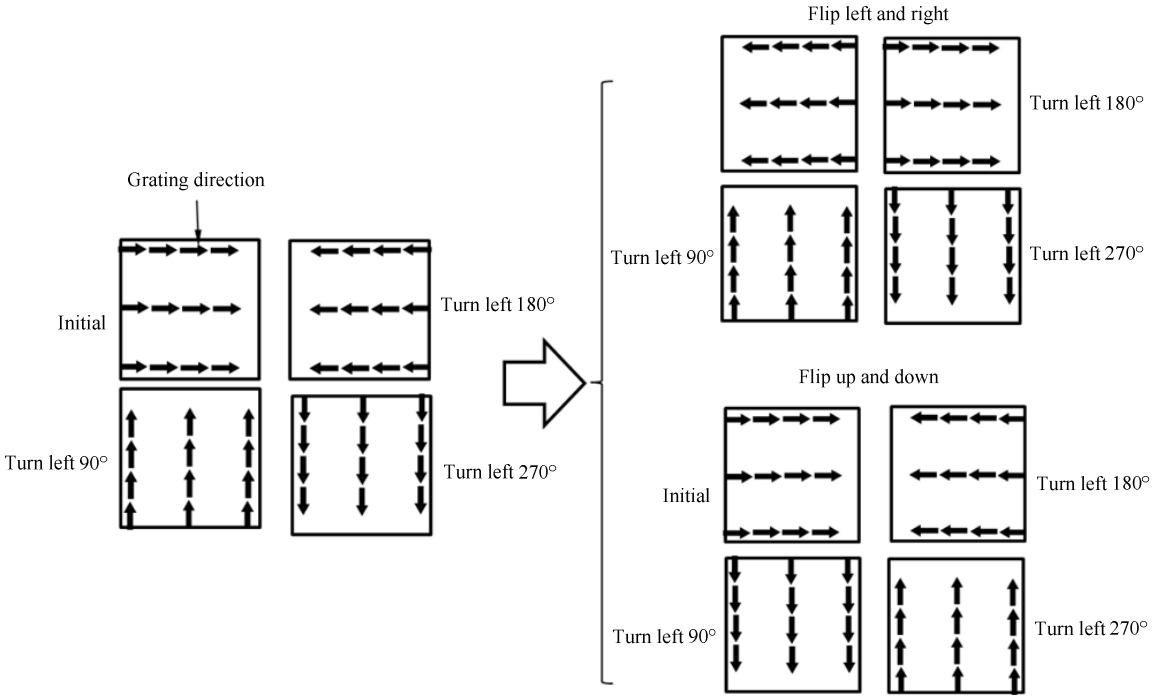
Grating direction
Initial
Turn left 180°
Turn left 90°
Turn left 270°
Flip left and right
Turn left 180°
Turn left 90°
Turn left 270°
Flip up and down
Initial
Turn left 180°
Turn left 90°
Turn left 270°

FIG. 5

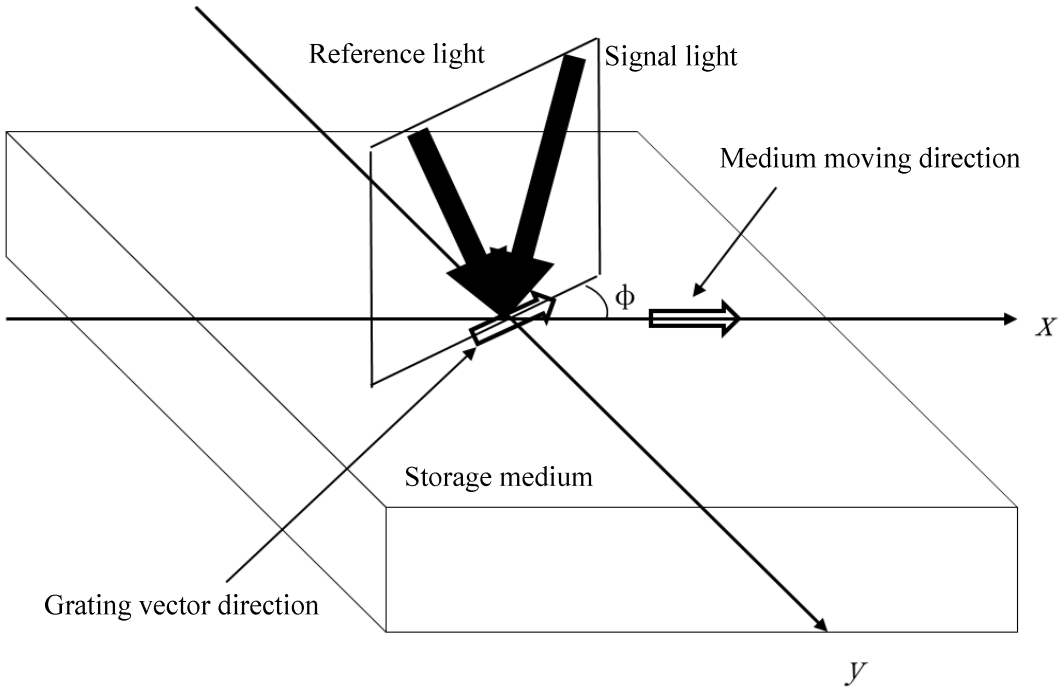
Reference light
Signal light
Medium moving direction
ϕ
X
Storage medium
Grating vector direction
y

FIG. 6

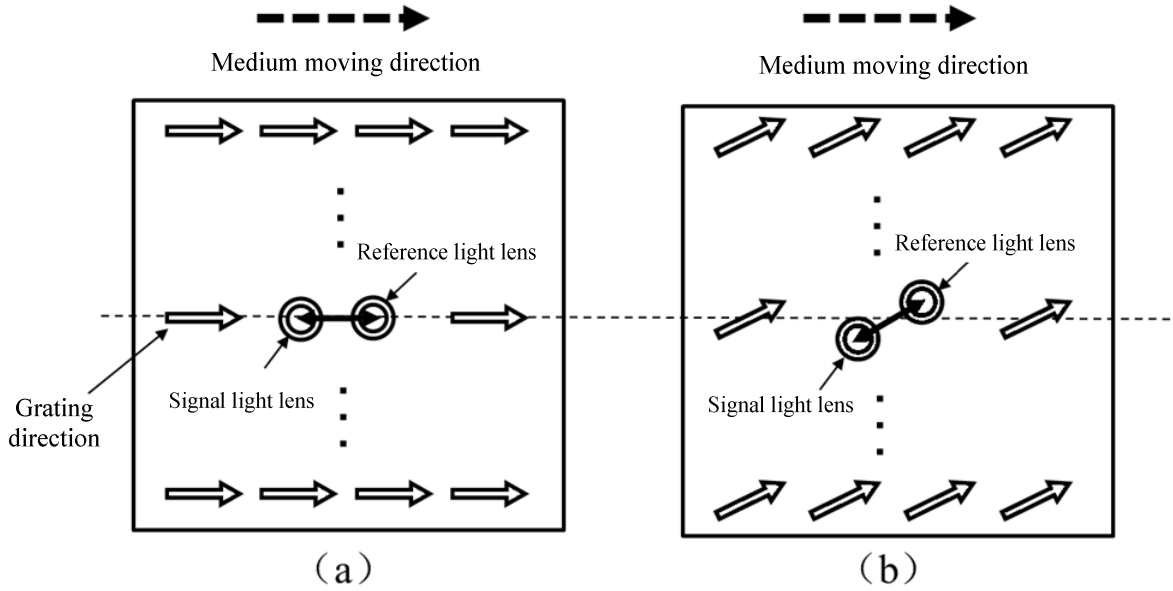
Medium moving direction
Medium moving direction
Reference light lens
Reference light lens
Grating direction
Signal light lens
Signal light lens
(a)
(b)

FIG. 7

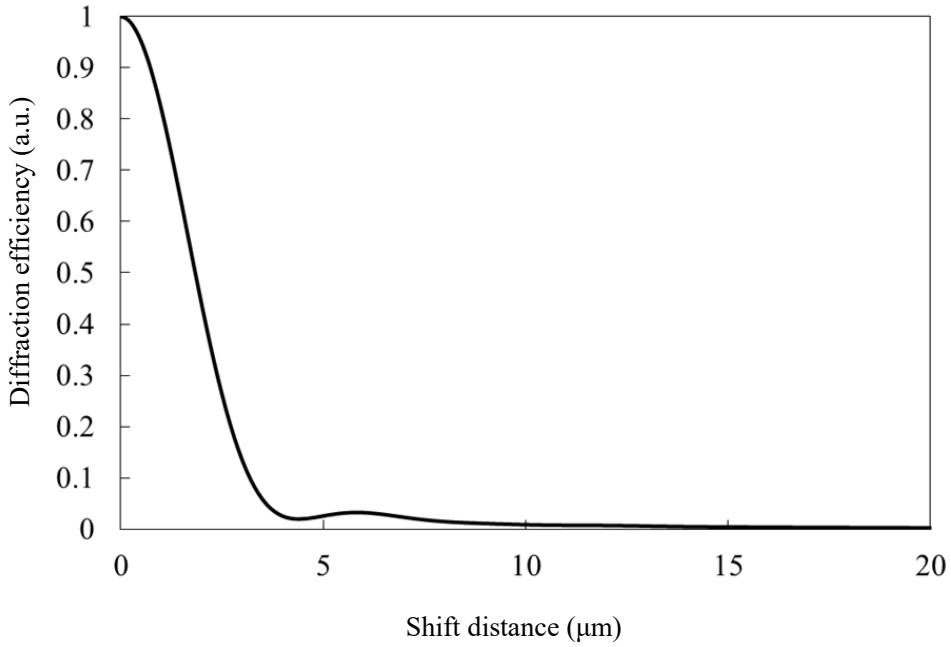
Diffraction efficiency (a.u.)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
Shift distance (μm)

FIG. 8

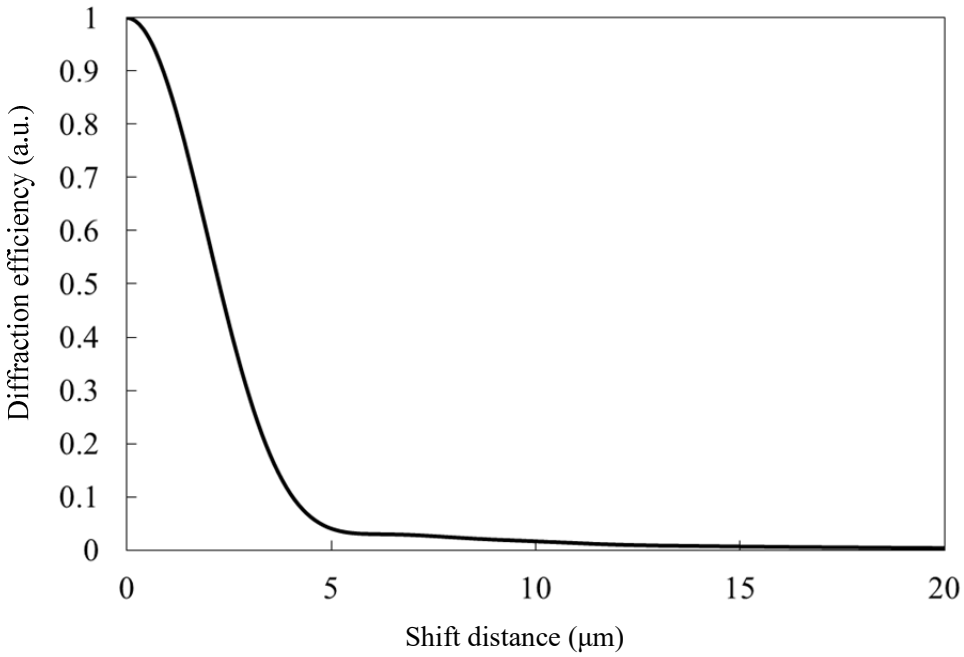
Diffraction efficiency (a.u.)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
Shift distance (μm)

FIG. 9

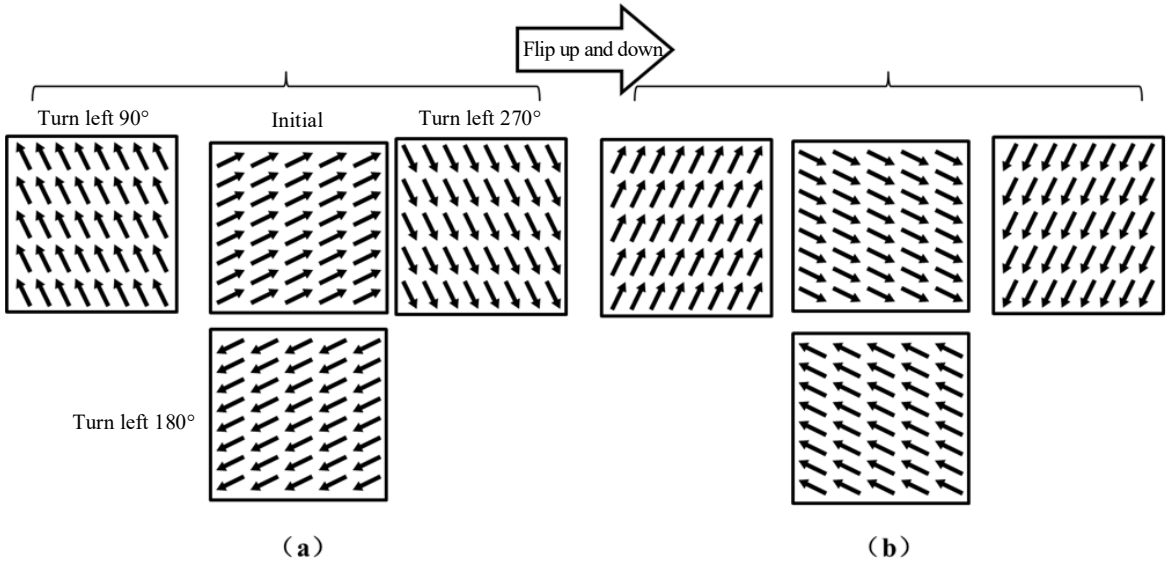
Flip up and down
Turn left 90°
Initial
Turn left 270°
Turn left 180°
(a)
(b)

FIG. 10

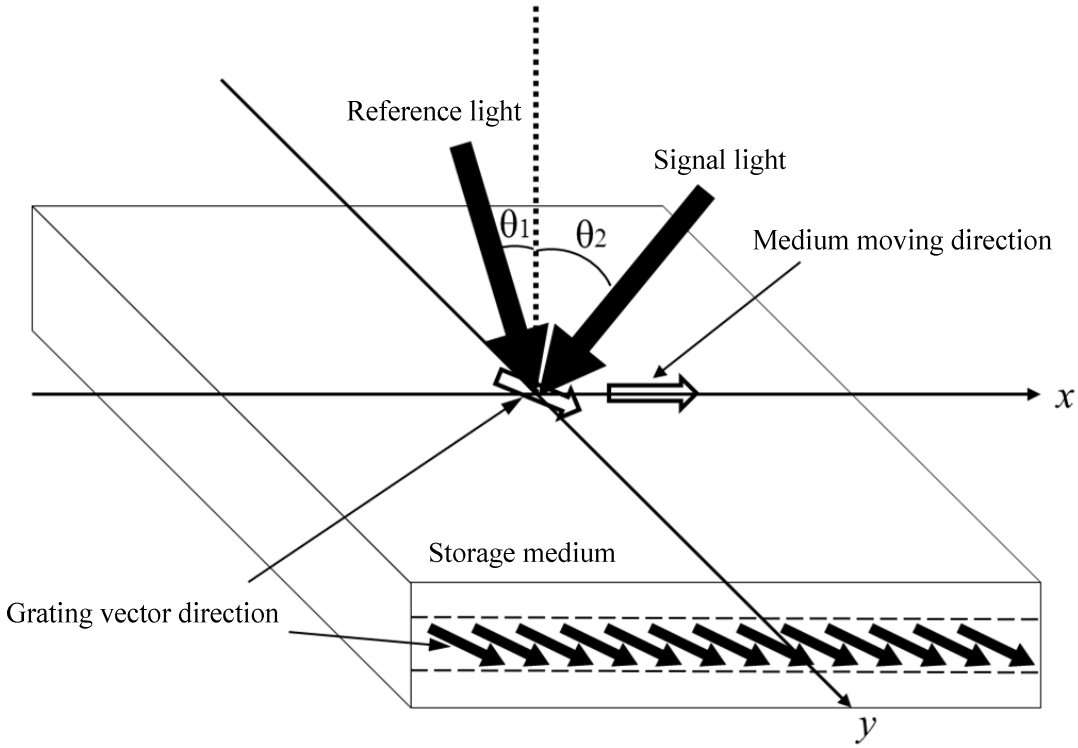
Reference light
Signal light
θ1
θ2
Medium moving direction
x
Storage medium
Grating vector direction
y

FIG. 11

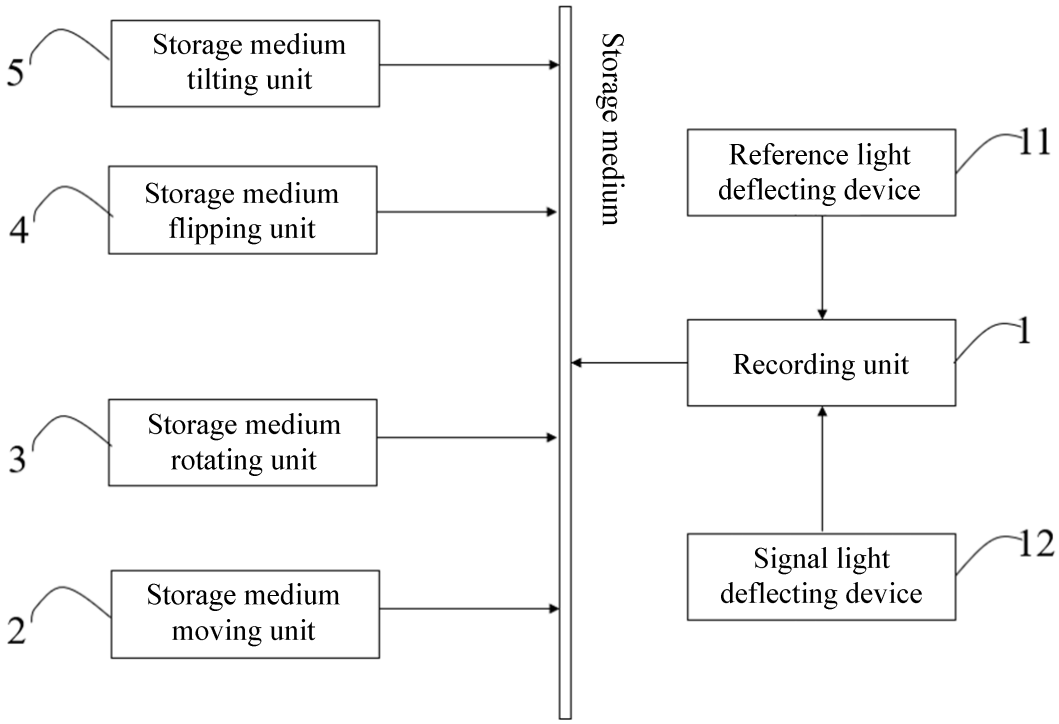
5
Storage medium tilting unit
4
Storage medium flipping unit
3
Storage medium rotating unit
2
Storage medium moving unit
Storage medium
Reference light deflecting device
11
Recording unit
1
Signal light deflecting device
12

FIG. 12