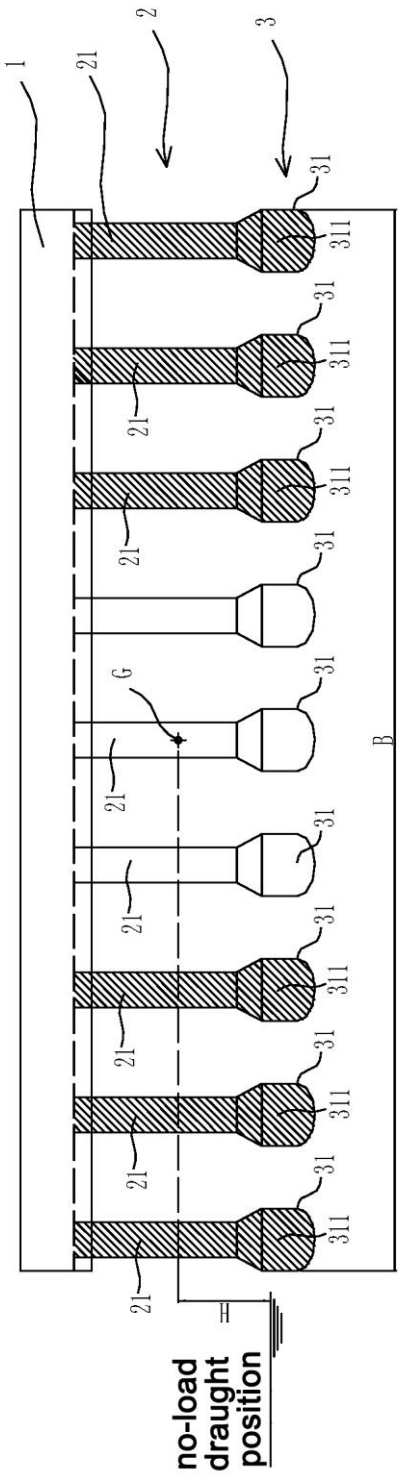


FIG.1

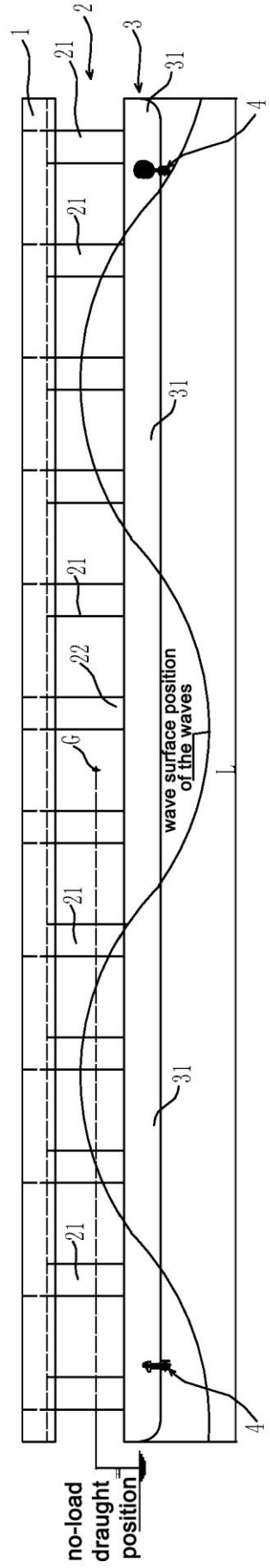

1
21
2
3
31
4
21
31
21
22
G
wave surface position of the waves
L
21
31
21
4
no-load draught position

FIG.2

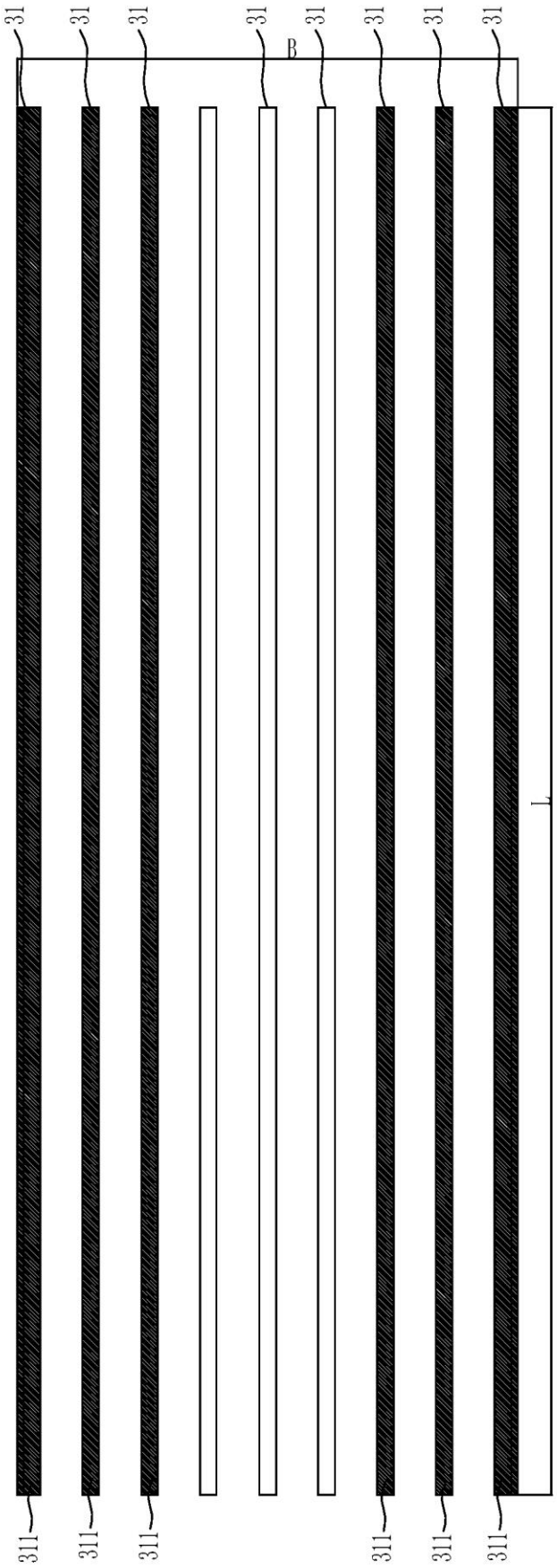


FIG.3

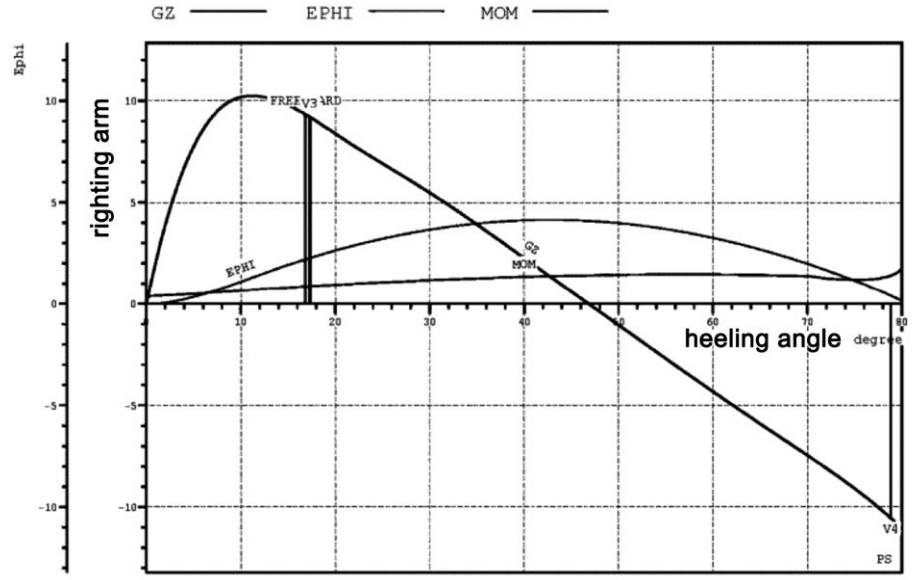

GZ
EPHI
MOM
Ephi
righting arm
FREEBOARD
V3
GZ
EPHI
MOM
heeling angle
degree
V4
PS

FIG.4

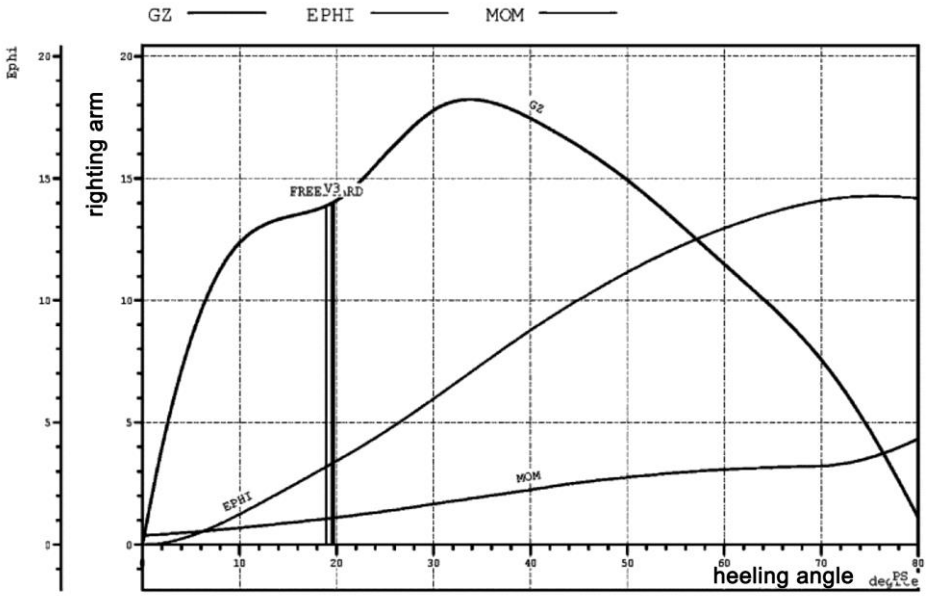

GZ
EPHI
MOM
Ephi
righting arm
FREEBOARD
V3
GZ
EPHI
MOM
heeling angle
degree
PS

FIG.5

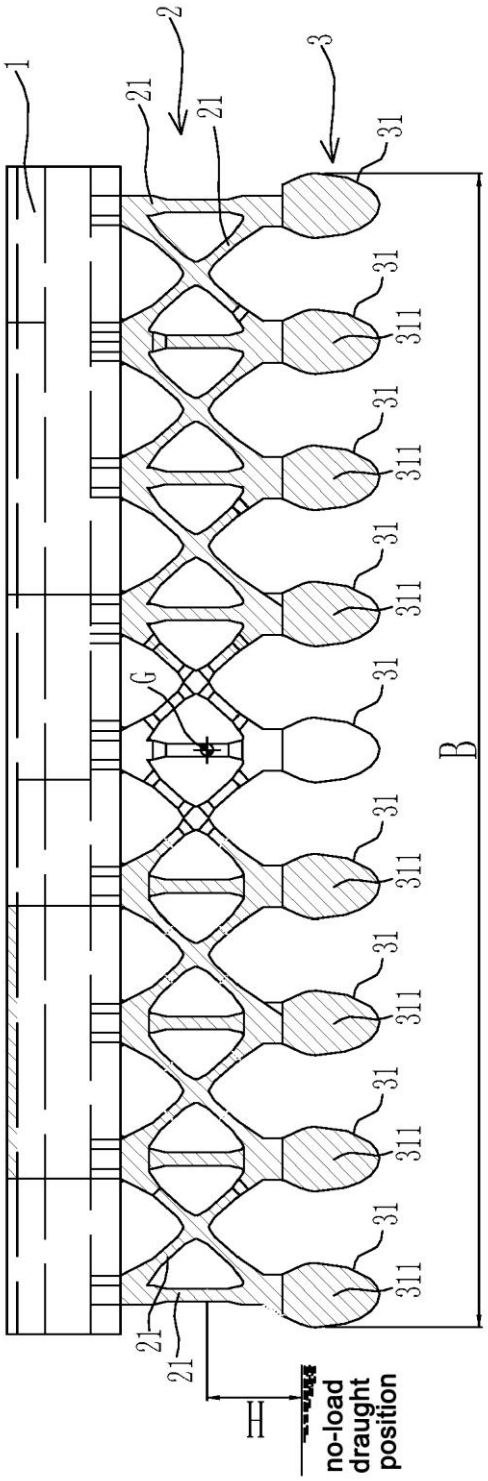


FIG.6

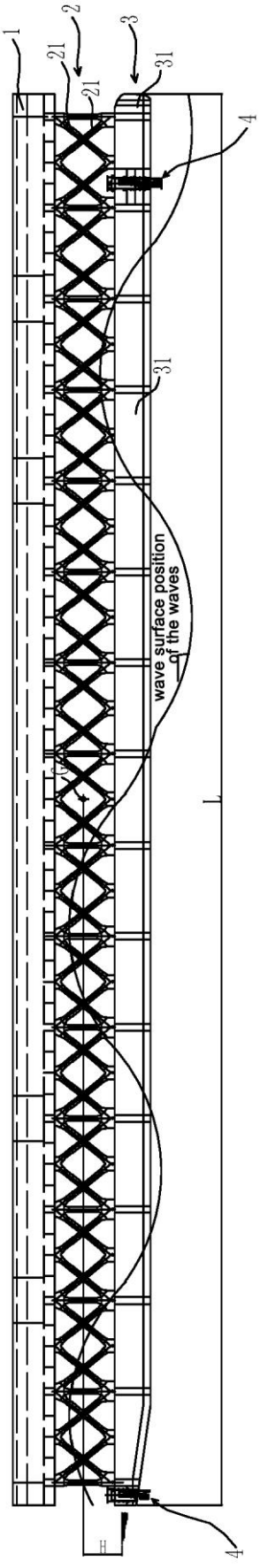


FIG.7

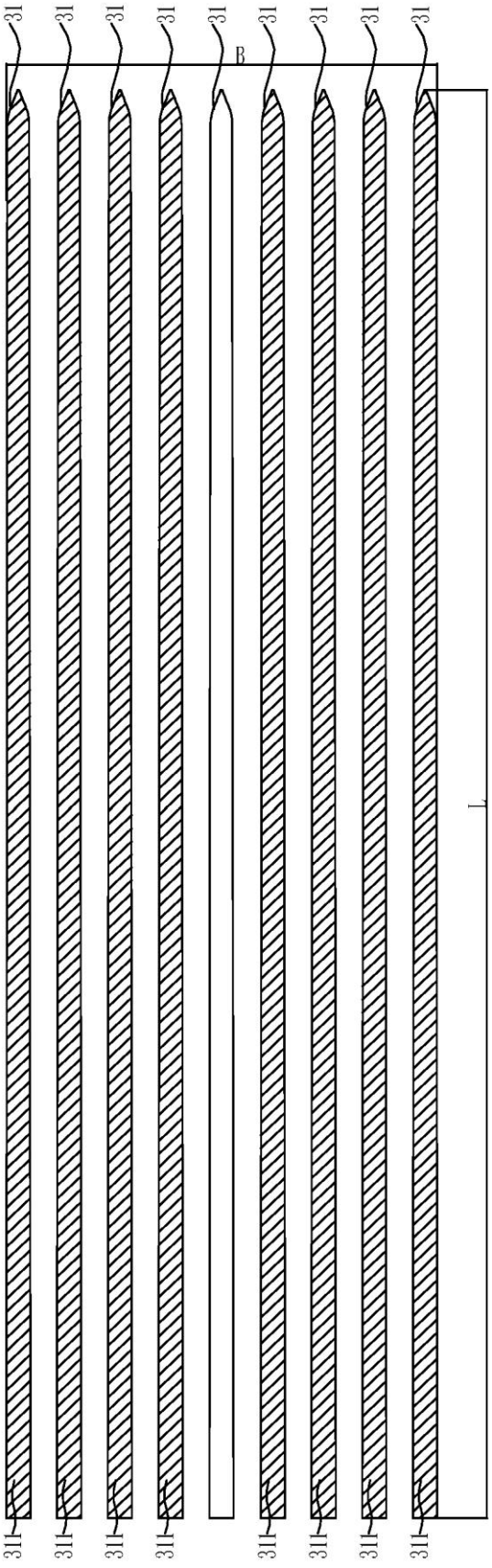


FIG.8

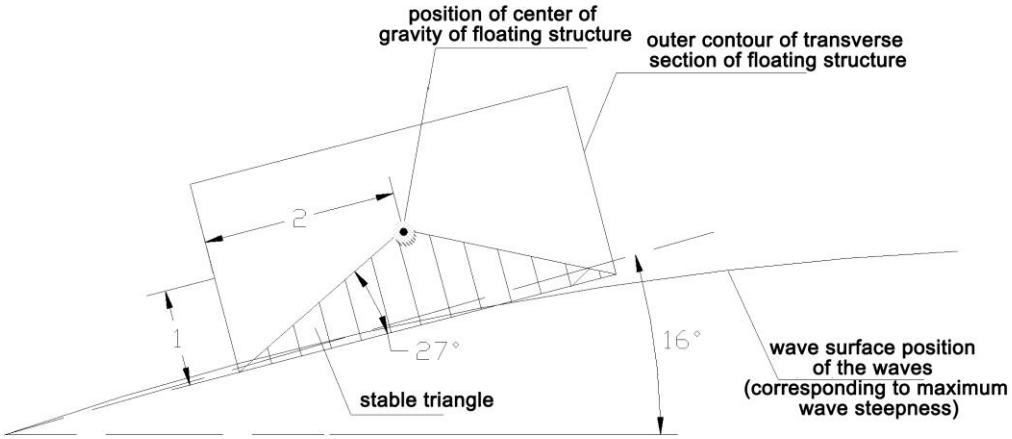

position of center of gravity of floating structure
outer contour of transverse section of floating structure
2
1
27°
16°
stable triangle
wave surface position of the waves (corresponding to maximum wave steepness)

FIG.9

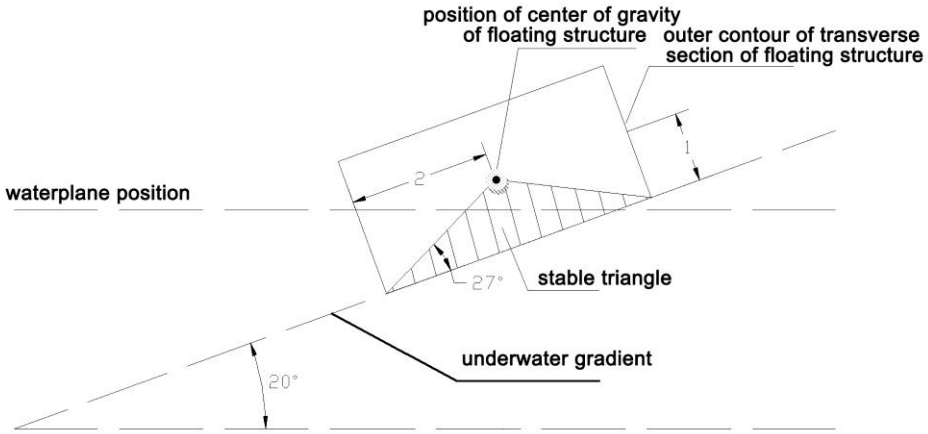

position of center of gravity of floating structure
outer contour of transverse section of floating structure
waterplane position
2
1
27°
stable triangle
underwater gradient
20°

FIG.10

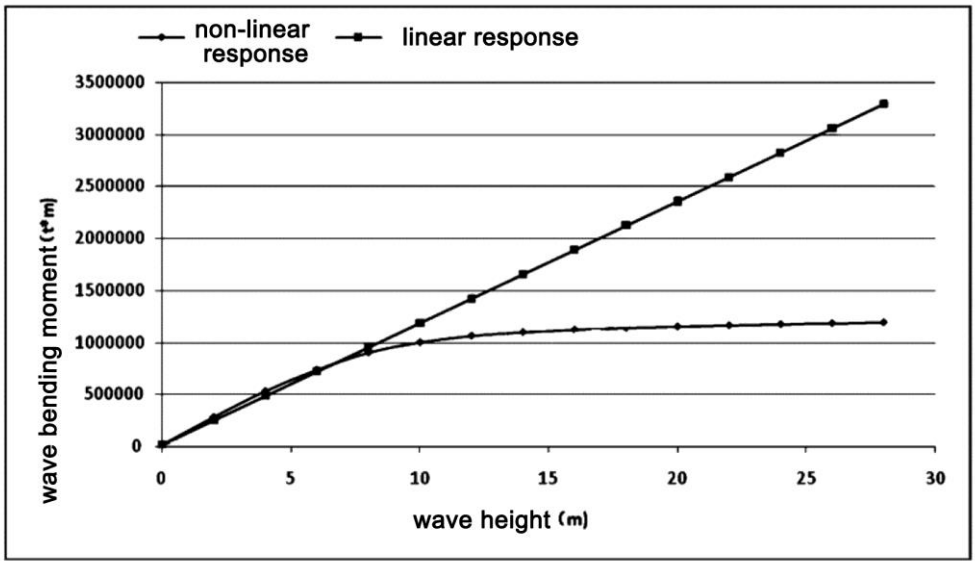

non-linear response
linear response
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
wave bending moment (t*m)
0
5
10
15
20
25
30
wave height (m)

FIG.11

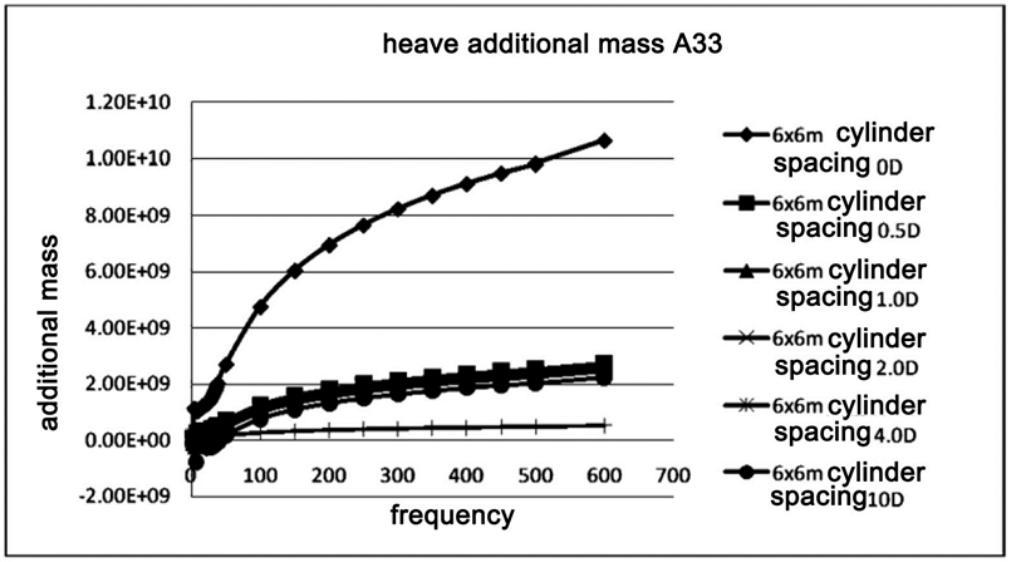

heave additional mass A33
1.20E+10
1.00E+10
8.00E+09
6.00E+09
4.00E+09
2.00E+09
0.00E+00
-2.00E+09
additional mass
0
100
200
300
400
500
600
700
frequency
6x6m cylinder spacing 0D
6x6m cylinder spacing 0.5D
6x6m cylinder spacing 1.0D
6x6m cylinder spacing 2.0D
6x6m cylinder spacing 4.0D
6x6m cylinder spacing10D

FIG.12

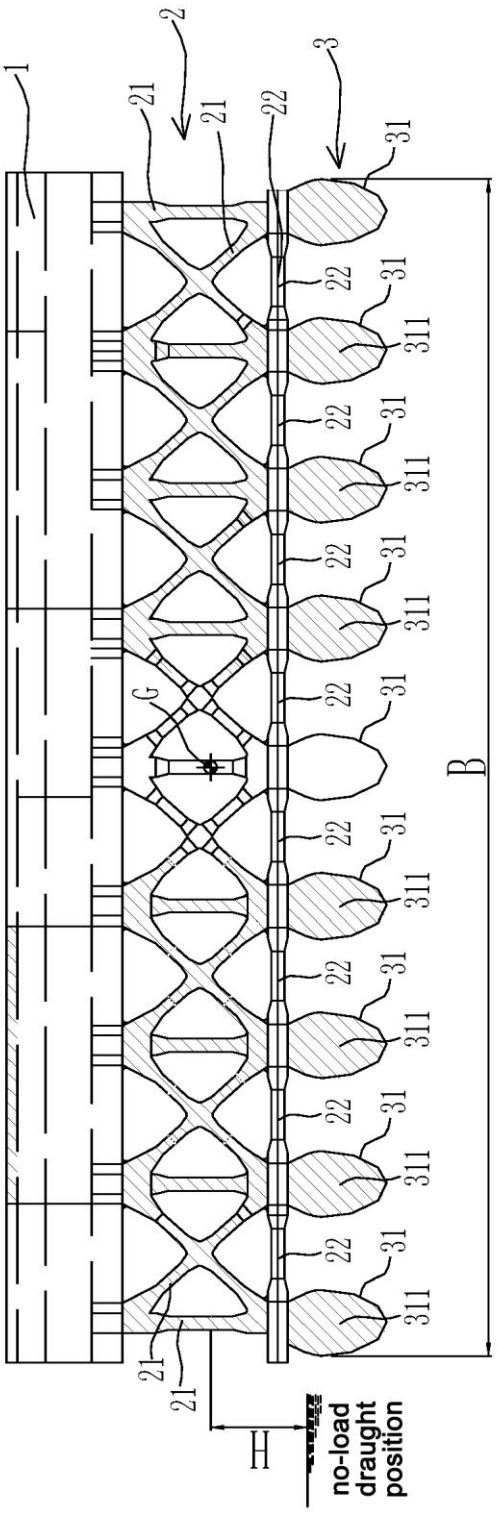


FIG.13

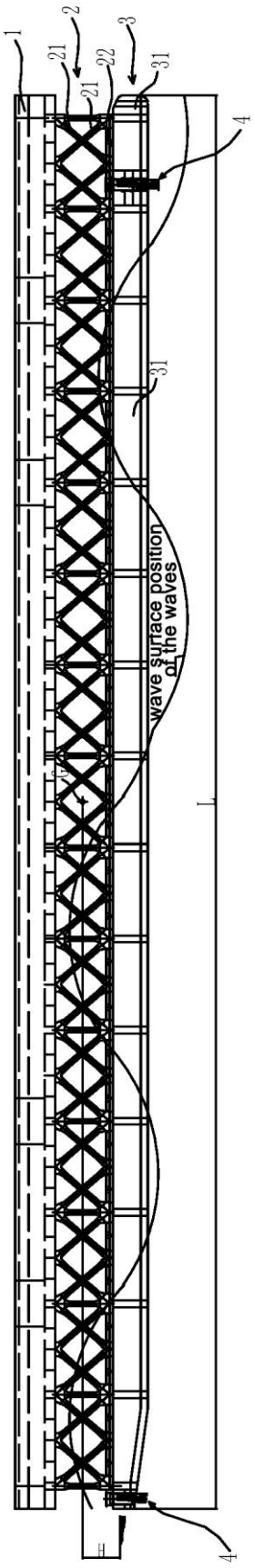


FIG.14

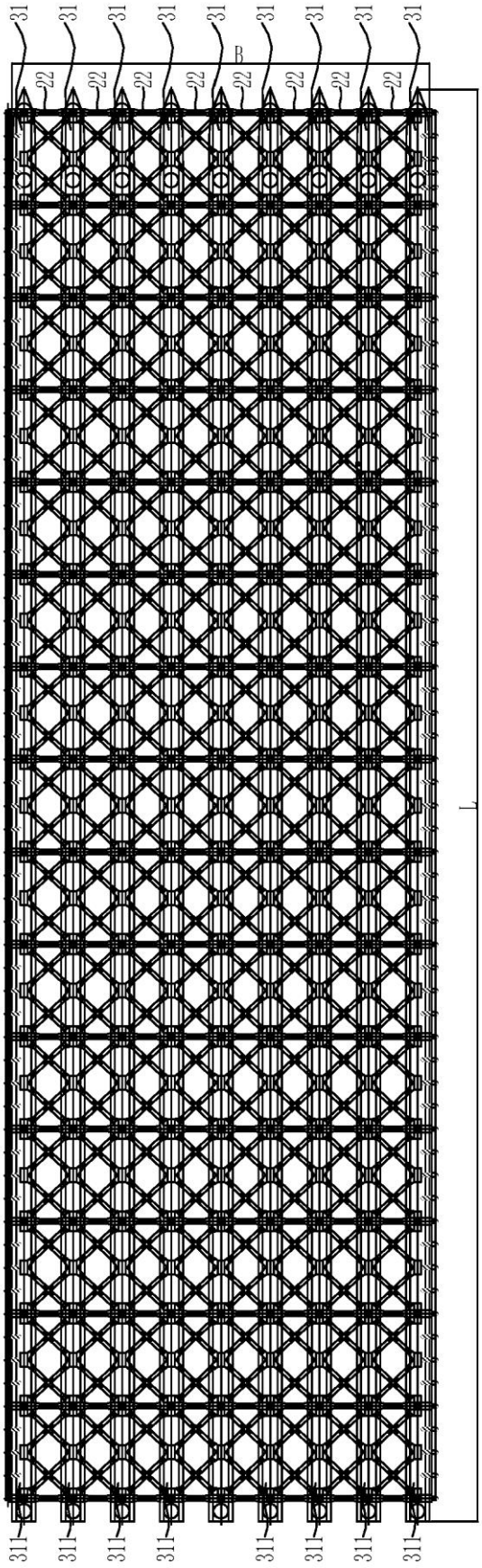


FIG.15

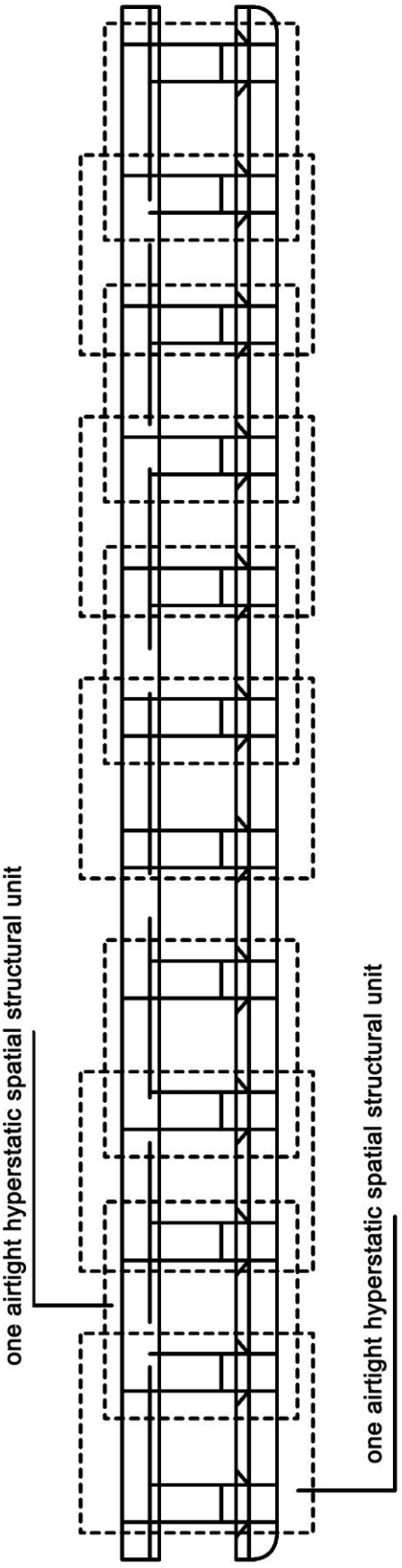

one airtight hyperstatic spatial structural unit
one airtight hyperstatic spatial structural unit

FIG.16

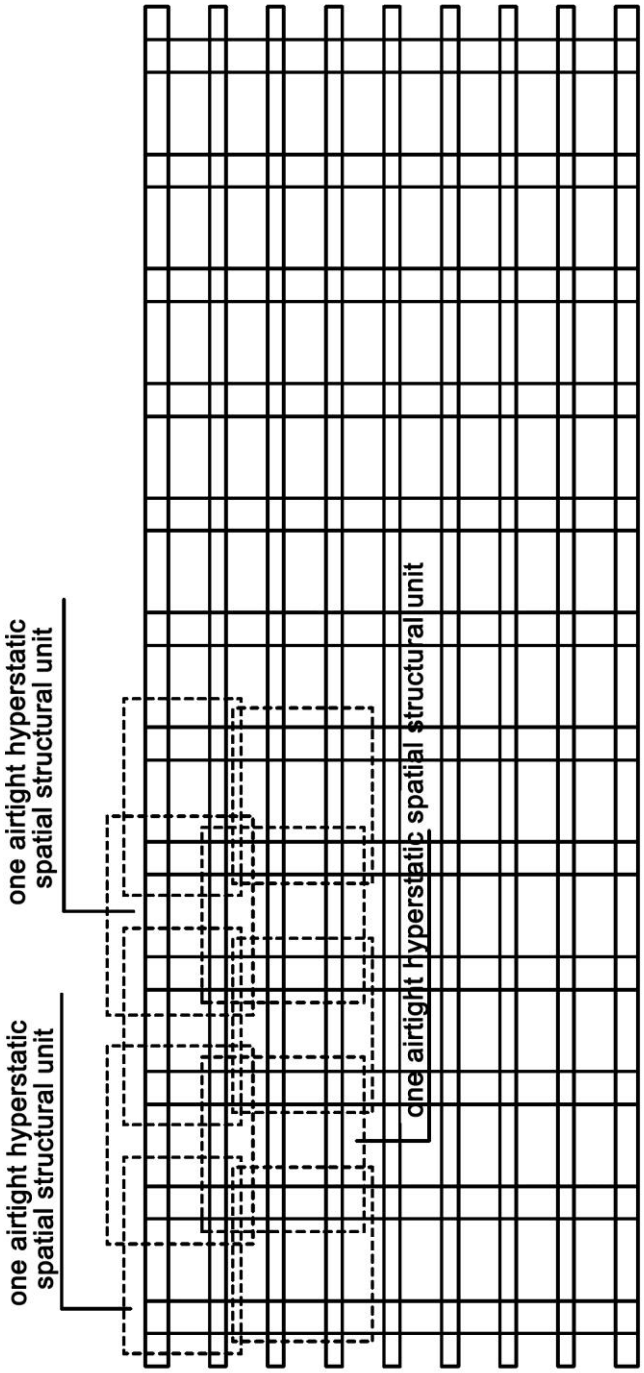

one airtight hyperstatic spatial structural unit
one airtight hyperstatic spatial structural unit
one airtight hyperstatic spatial structural unit

FIG.17

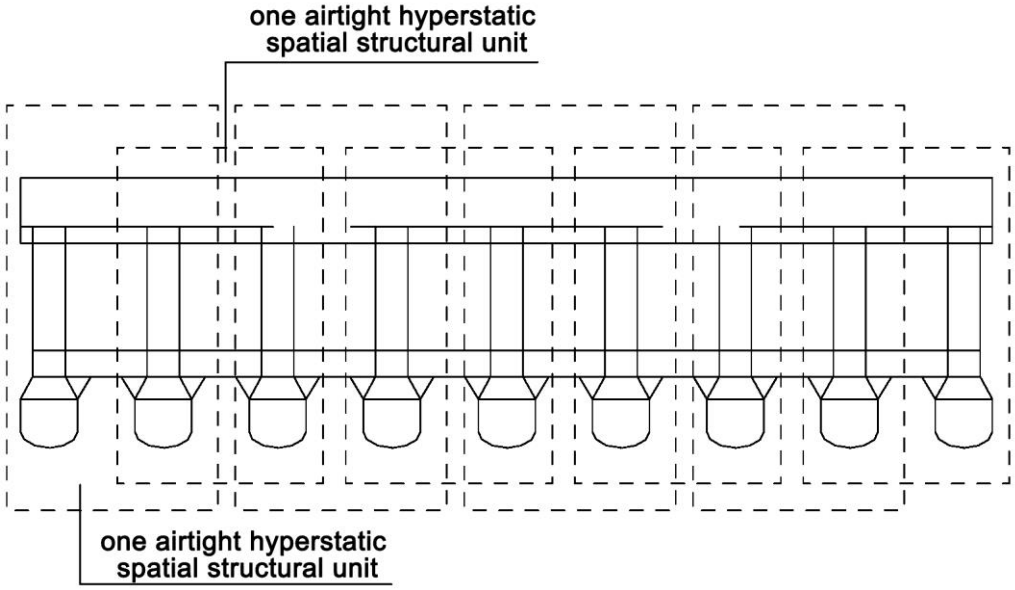

one airtight hyperstatic spatial structural unit
one airtight hyperstatic spatial structural unit

FIG.18

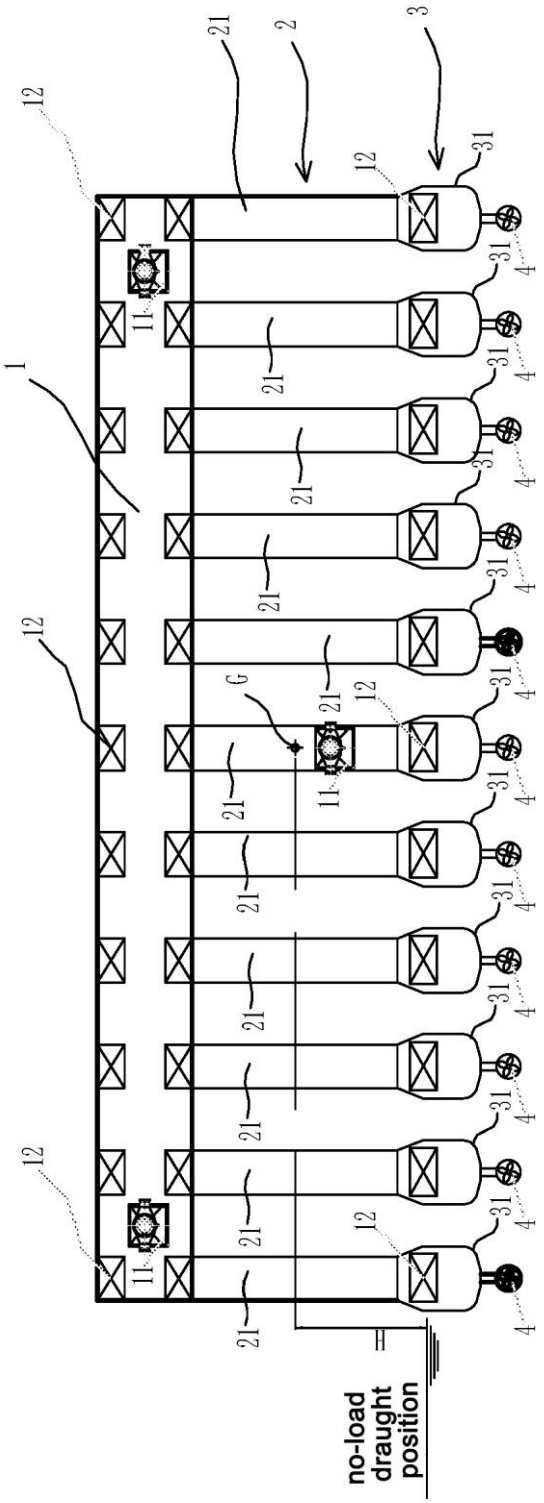


FIG.19

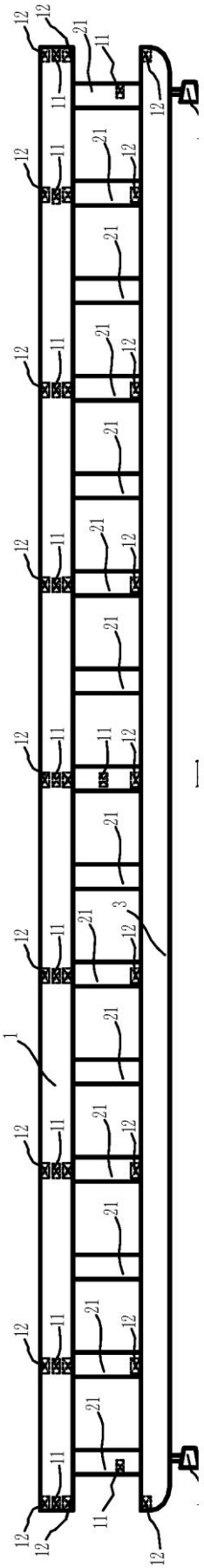


FIG.20

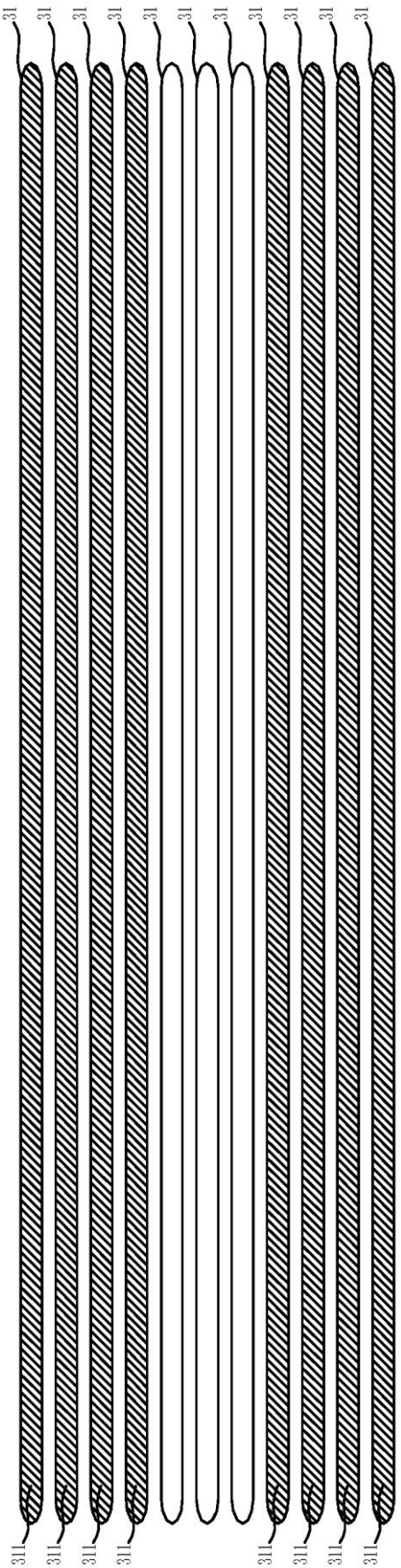


FIG.21

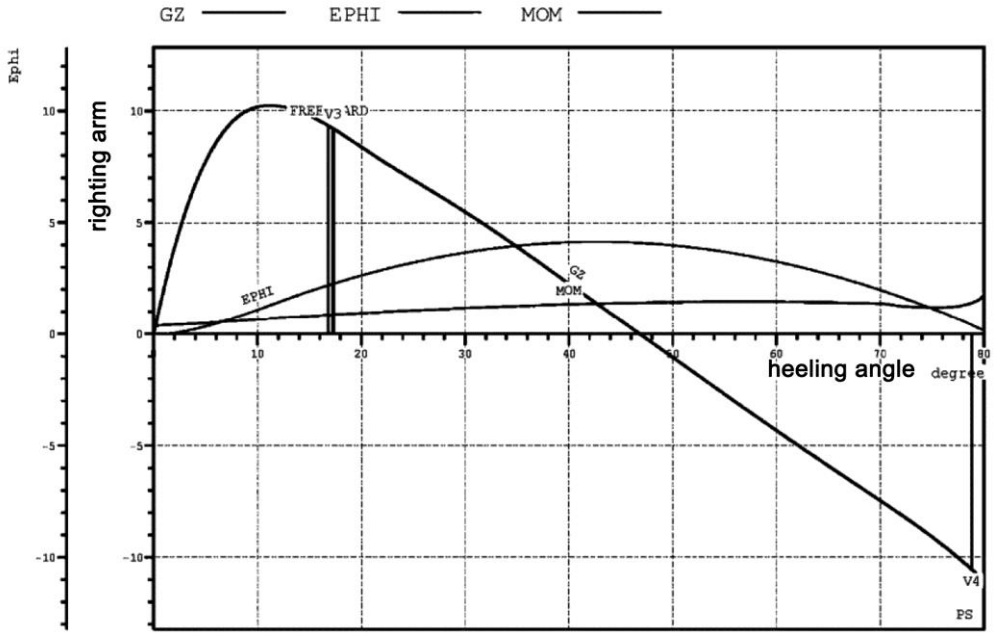

GZ
EPHI
MOM
Ephi
righting arm
FREEBOARD
V3
GZ
MOM
EPHI
heeling angle
degree
V4
PS

FIG.22

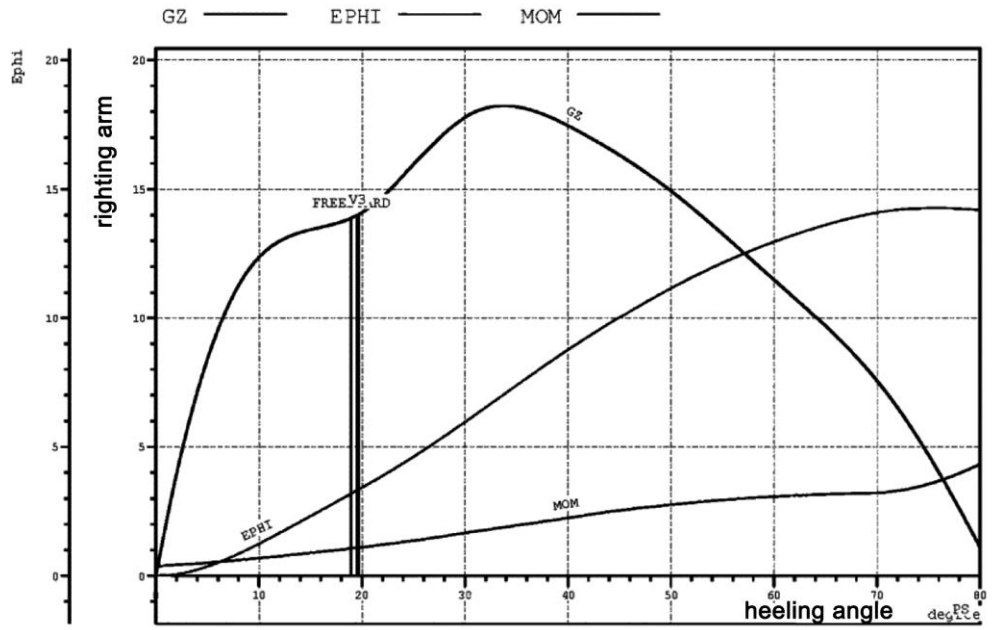

GZ
EPHI
MOM
Ephi
righting arm
GZ
FREEBOARD
V3
MOM
EPHI
heeling angle
degree
PS

FIG.23

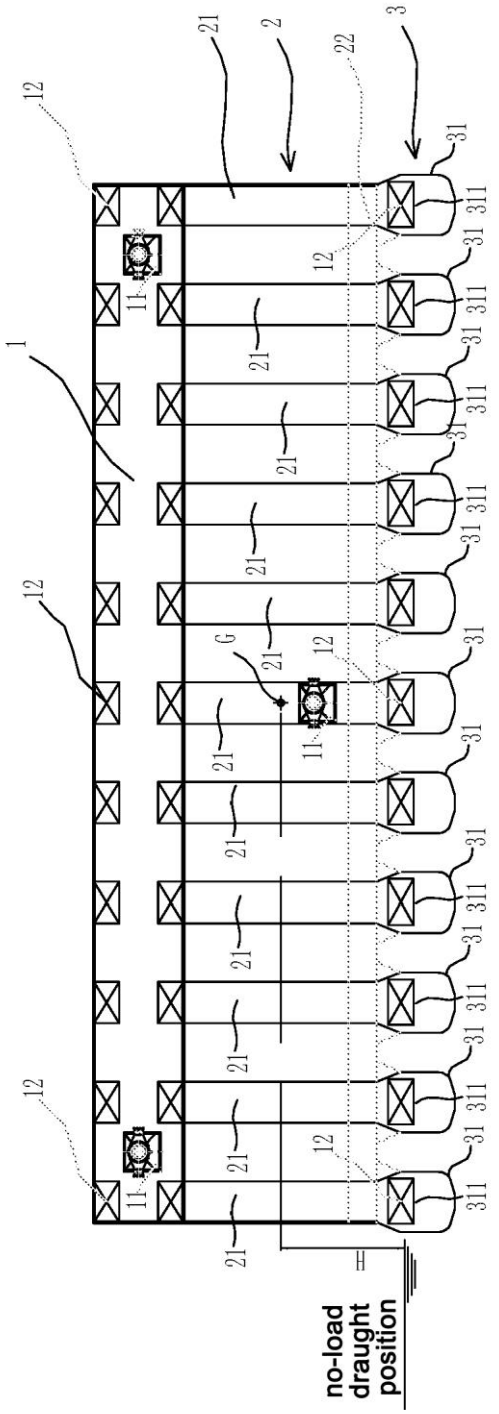


FIG.24

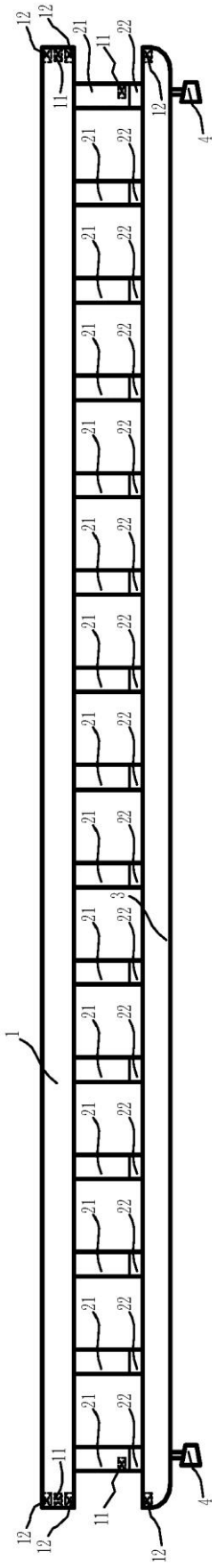

12
12
21
11
22
12
4
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22
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21
22
21
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21
22
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22
21
22
3
1
11
12
12
11
12
4

FIG.25

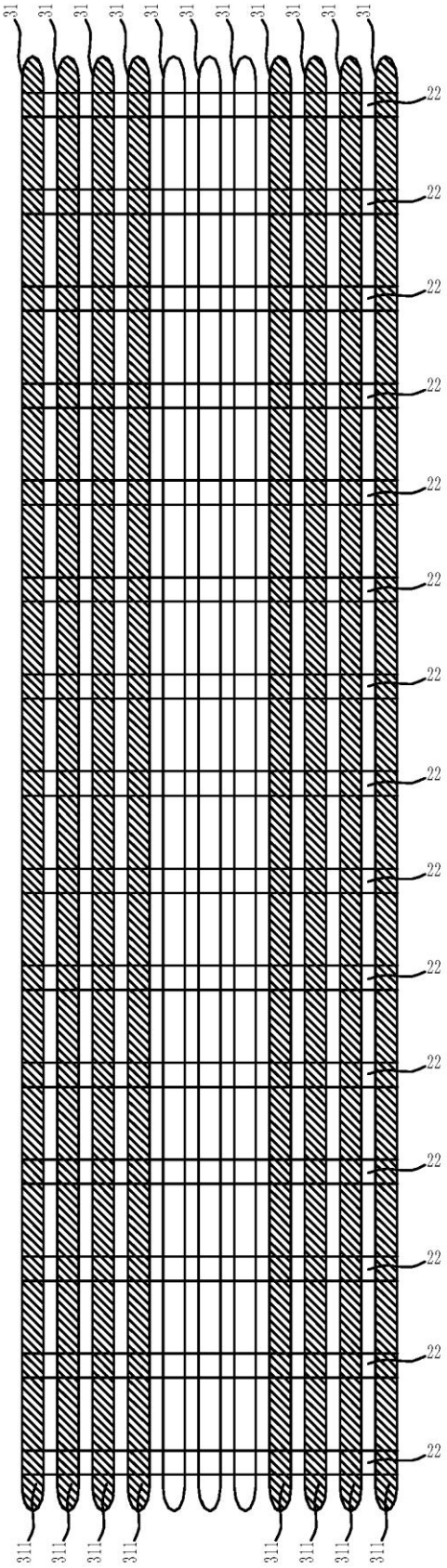


FIG.26

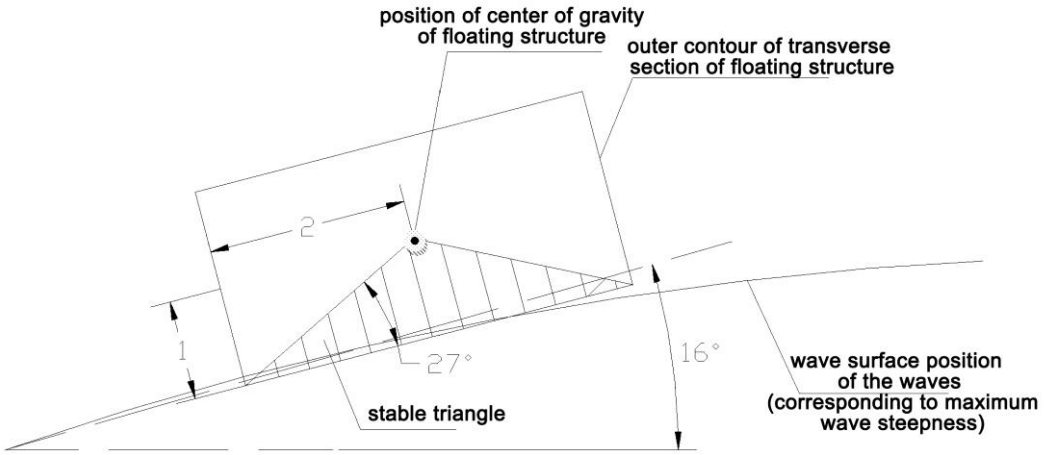

position of center of gravity
of floating structure
outer contour of transverse
section of floating structure
2
1
27°
16°
stable triangle
wave surface position
of the waves
(corresponding to maximum
wave steepness)

FIG.27

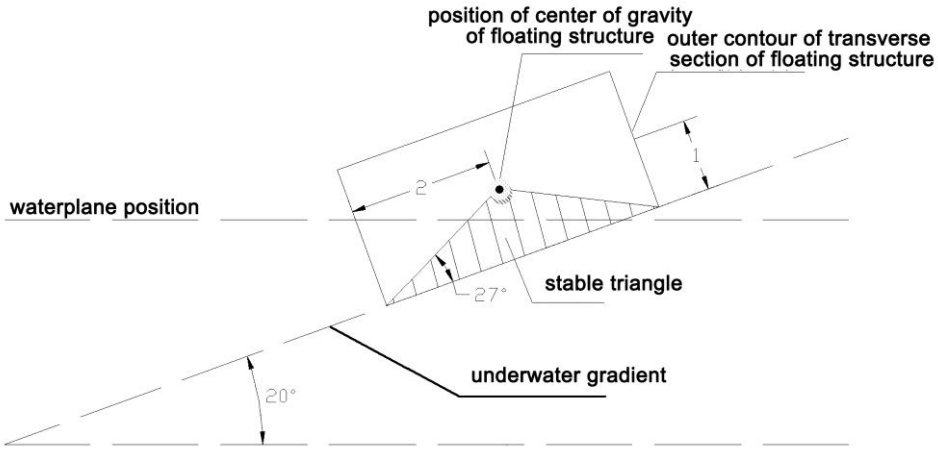

position of center of gravity
of floating structure
outer contour of transverse
section of floating structure
1
2
waterplane position
27°
stable triangle
underwater gradient
20°

FIG.28

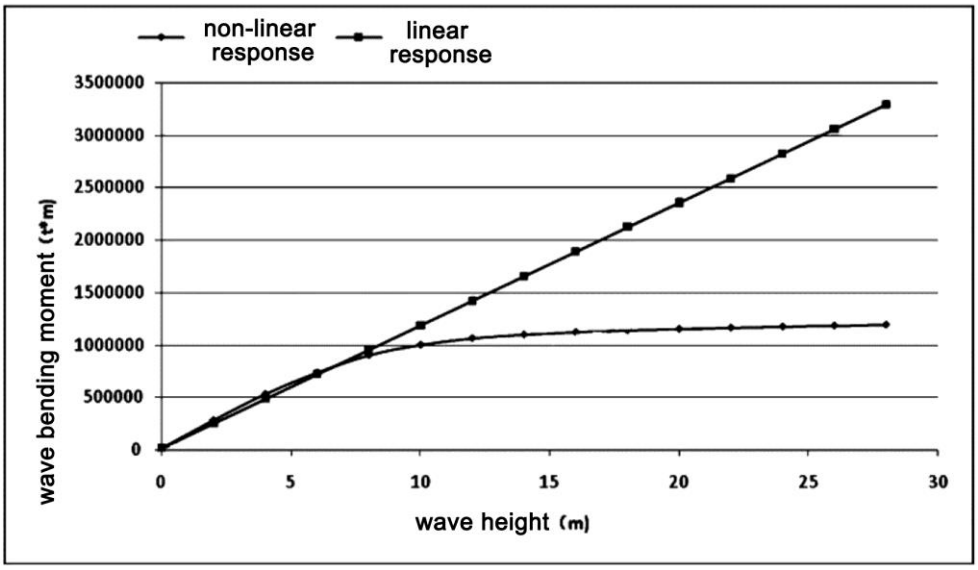

non-linear response
linear response
wave bending moment (t*m)
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
0
5
10
15
20
25
30
wave height (m)

FIG.29

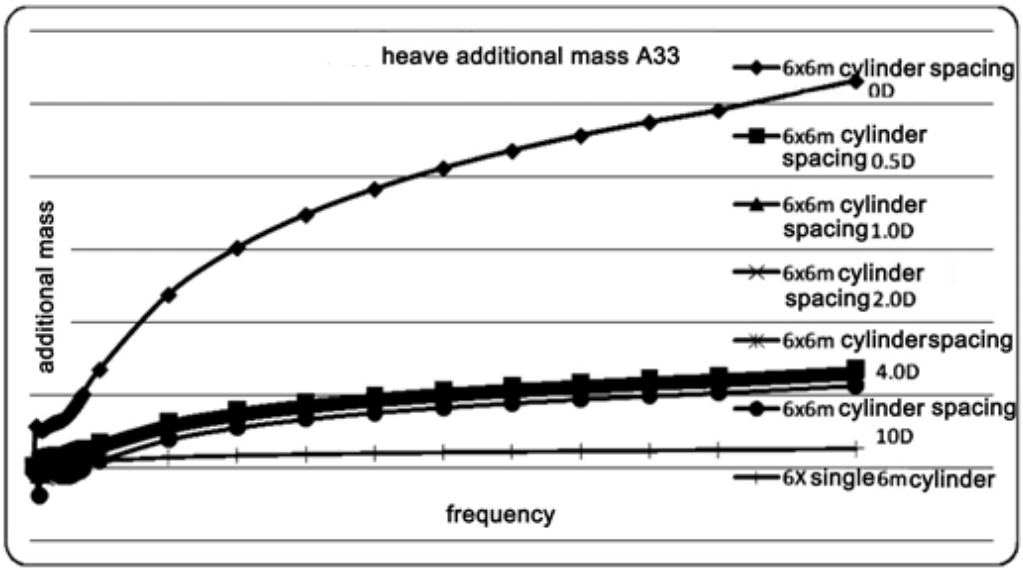

heave additional mass A33
6x6m cylinder spacing 0D
6x6m cylinder spacing 0.5D
6x6m cylinder spacing 1.0D
6x6m cylinder spacing 2.0D
6x6m cylinder spacing 4.0D
6x6m cylinder spacing 10D
6X single 6m cylinder
additional mass
frequency

FIG.30

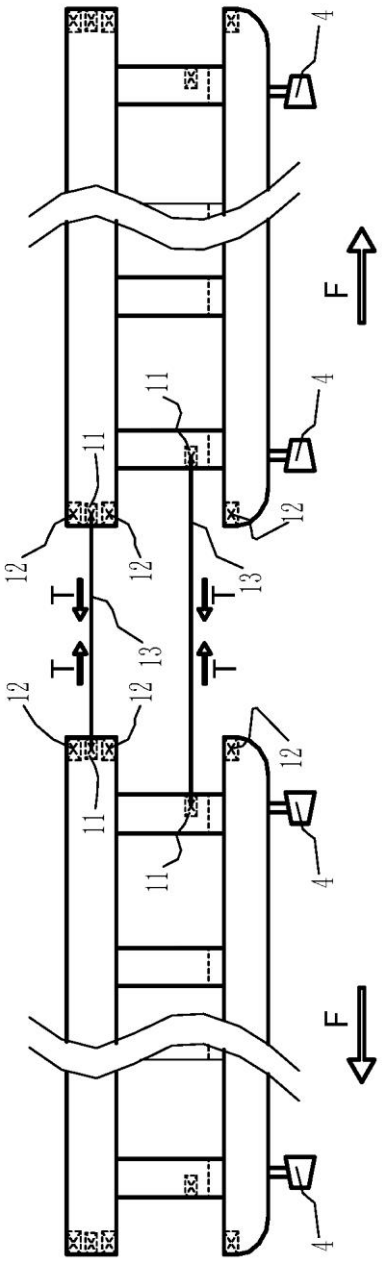


FIG.31

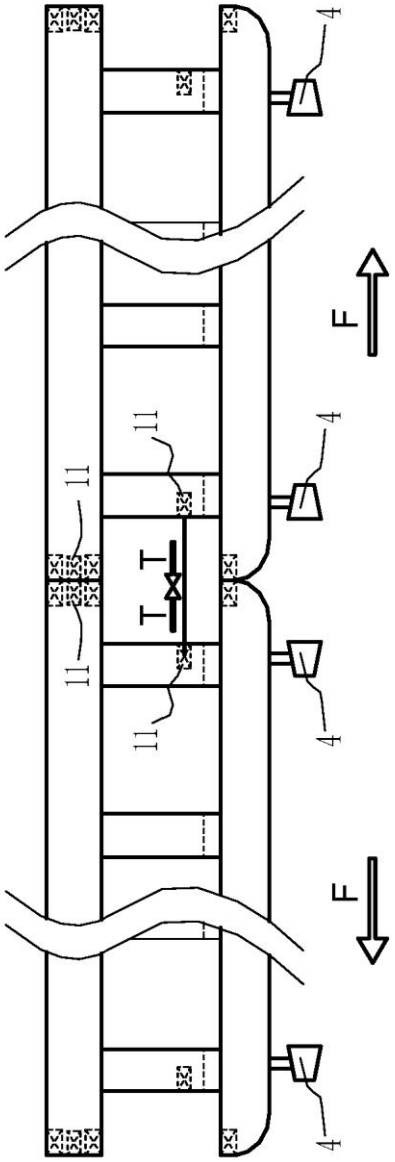


FIG.32