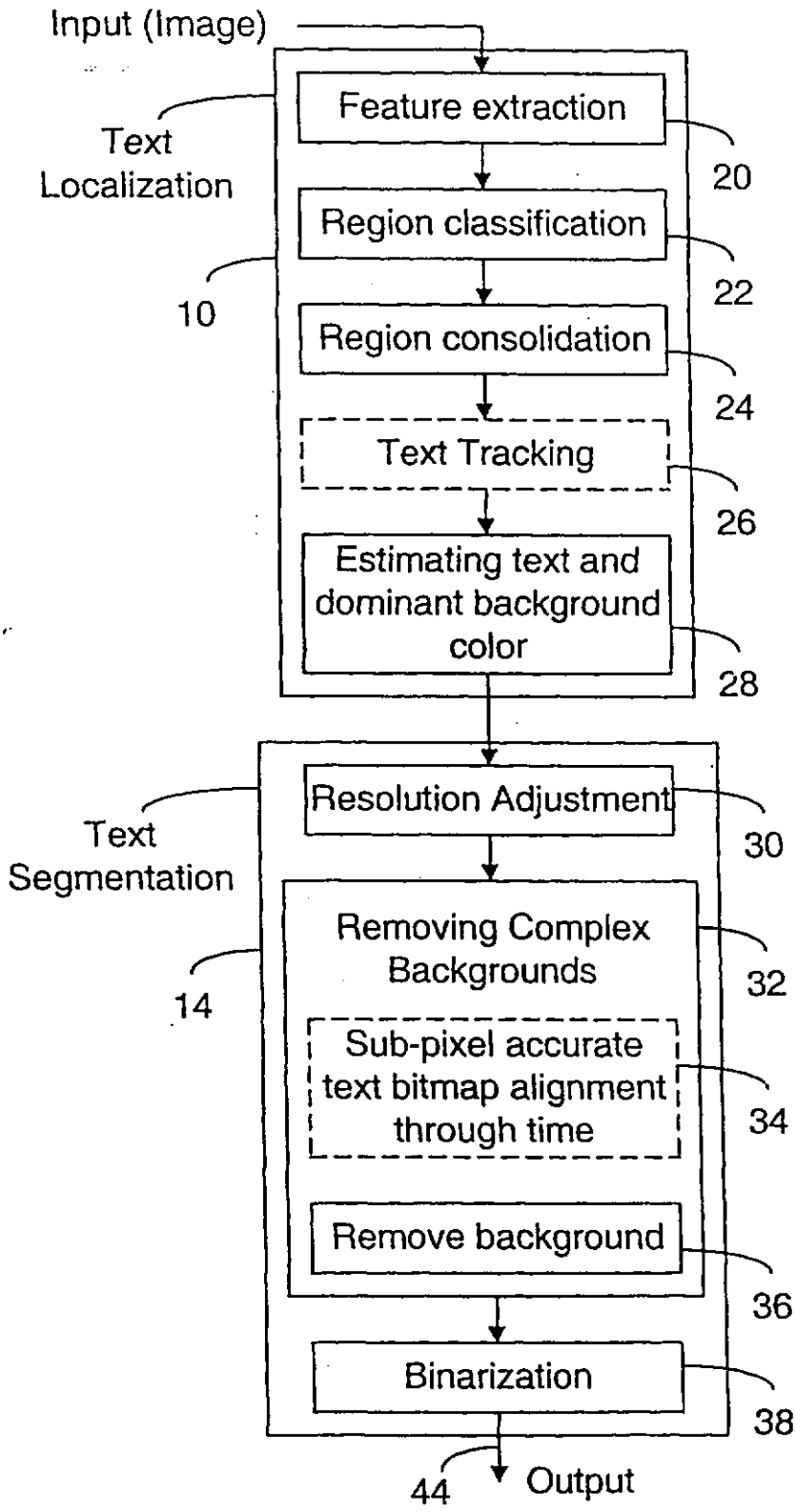

Input (Image)
Text Localization
10
Feature extraction
20
Region classification
22
Region consolidation
24
Text Tracking
26
Estimating text and dominant background color
28
Text Segmentation
14
Resolution Adjustment
30
Removing Complex Backgrounds
32
Sub-pixel accurate text bitmap alignment through time
34
Remove background
36
Binarization
38
44
Output

FIG. 1

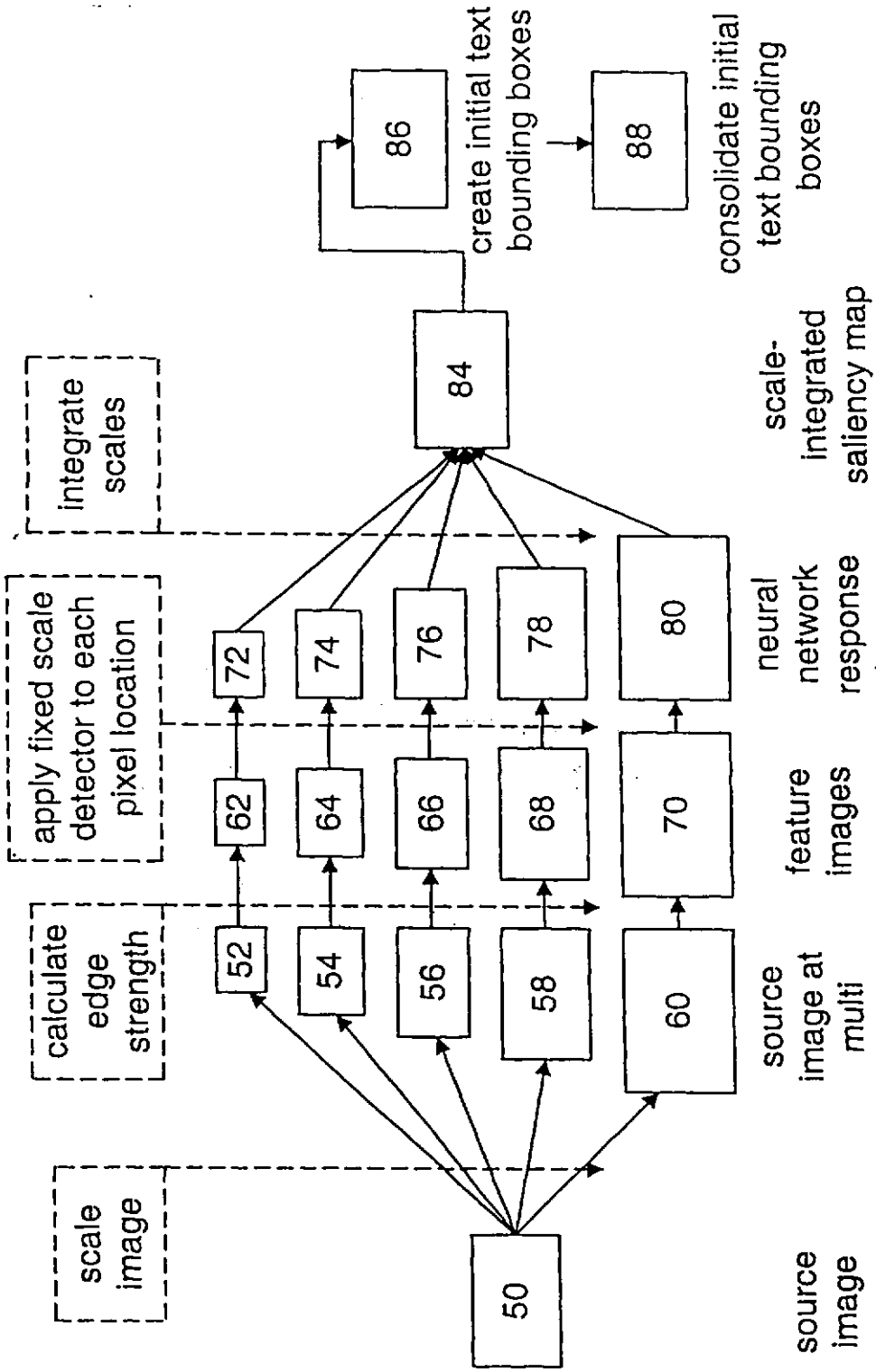

scale image
calculate edge strength
apply fixed scale detector to each pixel location
integrate scales
source image
source image at multi resolutions
feature images
neural network response image
scale-integrated saliency map
create initial text bounding boxes
consolidate initial text bounding boxes
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
84
86
88

FIG. 2

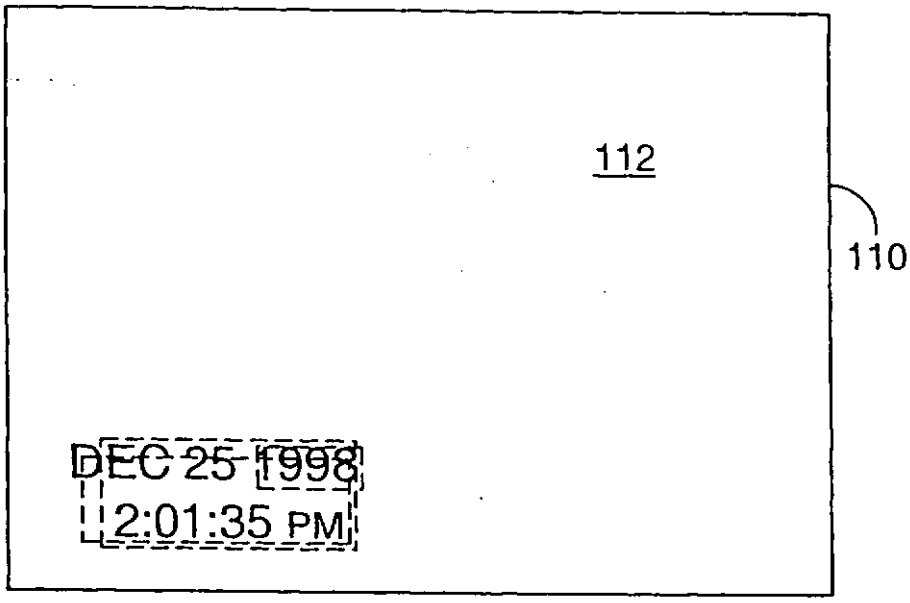

112
110
DEC 25 1998
2:01:35 PM

FIG. 3

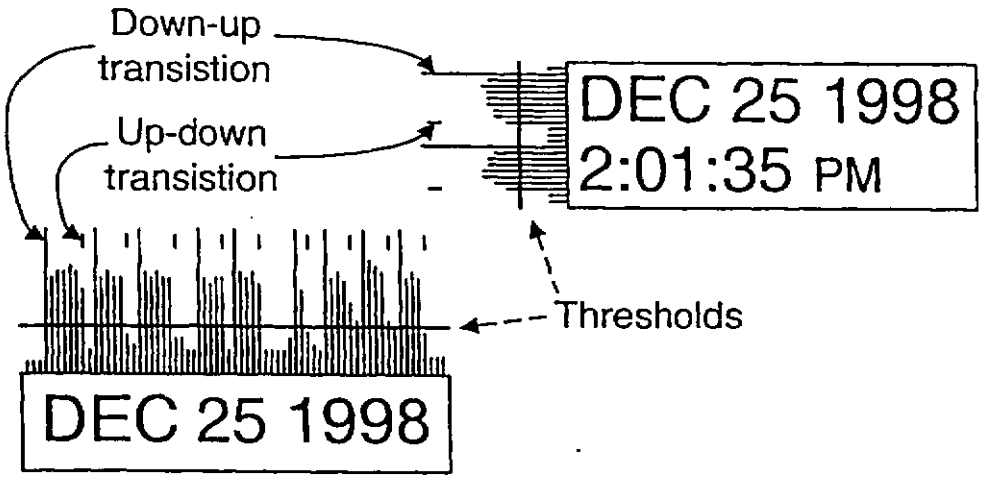

Down-up transistion
Up-down transistion
DEC 25 1998
2:01:35 PM
Thresholds
DEC 25 1998

FIG. 4

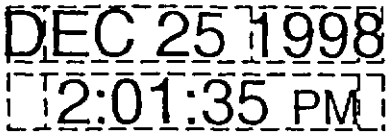


FIG. 5

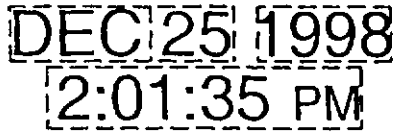


FIG. 6

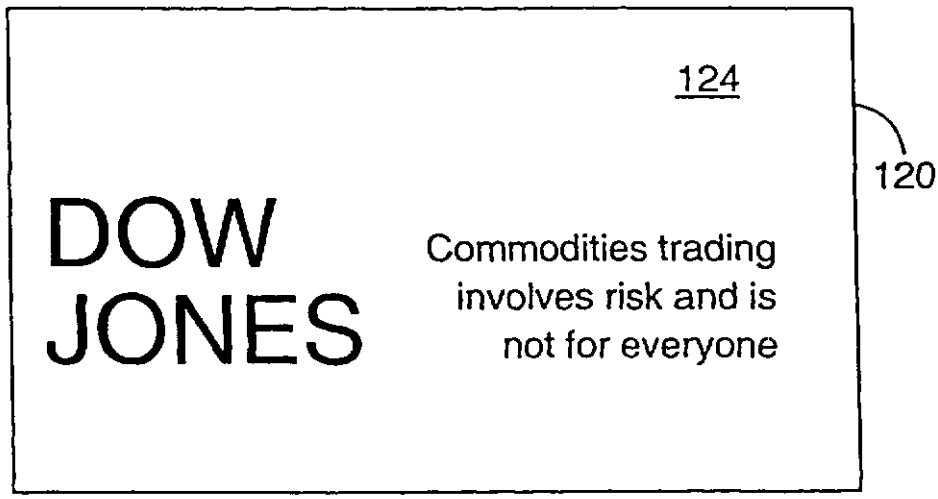


FIG. 7

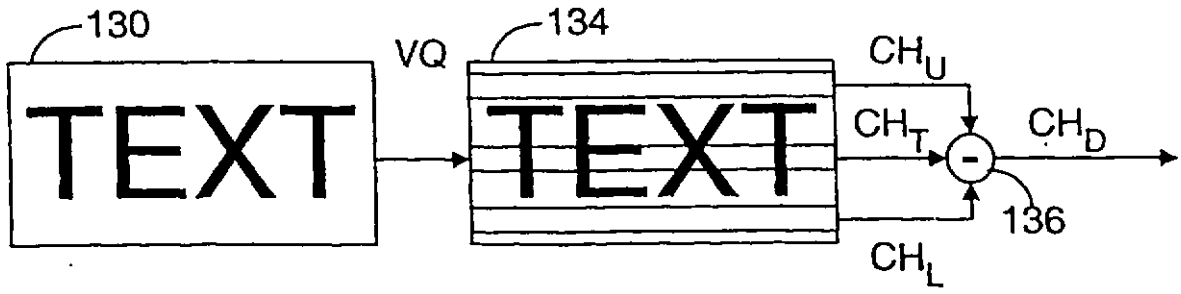


FIG. 8

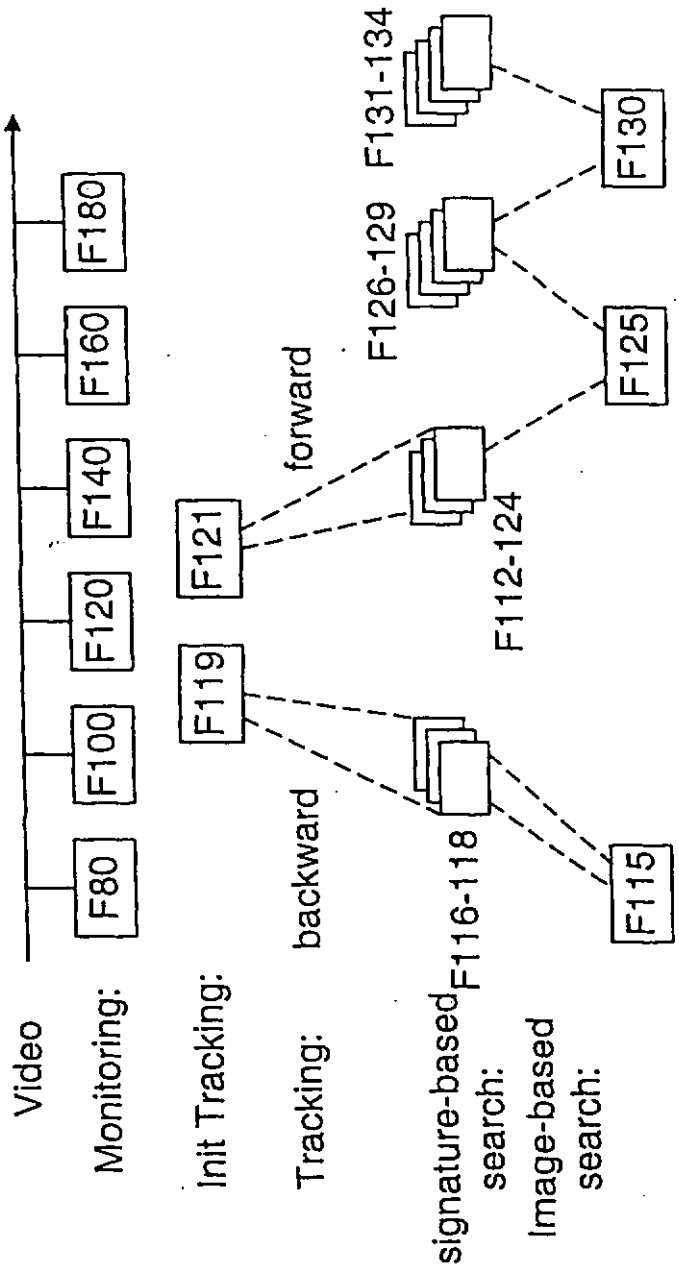

Video
Monitoring:
F80
F100
F120
F140
F160
F180
Init Tracking:
F119
F121
forward
backward
Tracking:
signature-based search:
F116-118
Image-based search:
F115
F112-124
F126-129
F131-134
F125
F130

FIG. 9

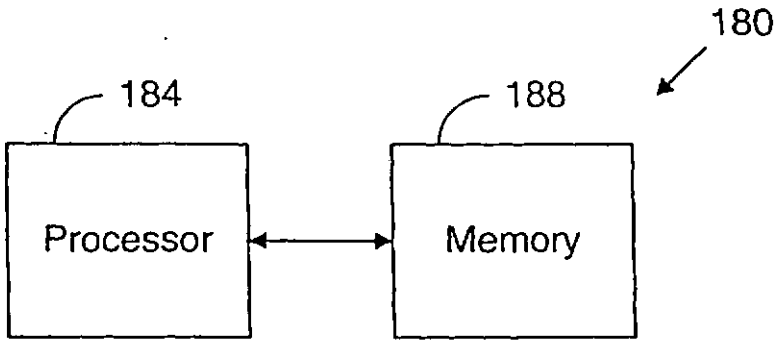


FIG. 10