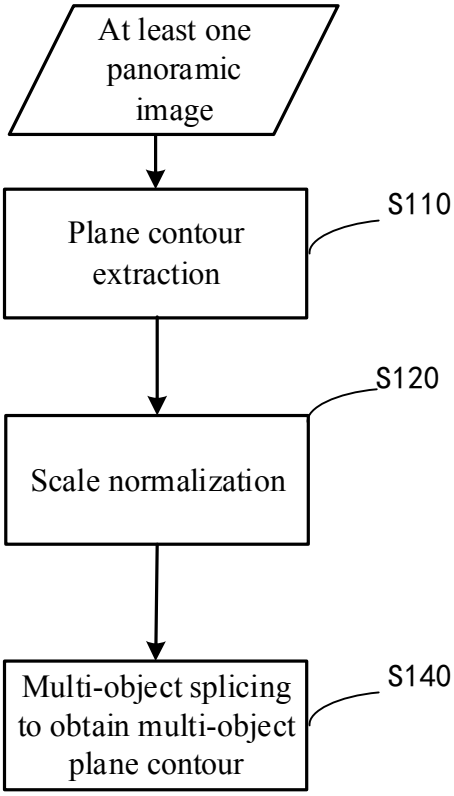

FIG. 1A

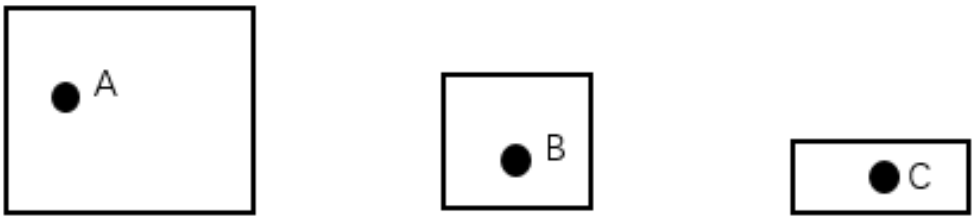

FIG. 1B

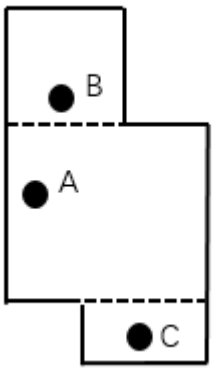

FIG. 1C

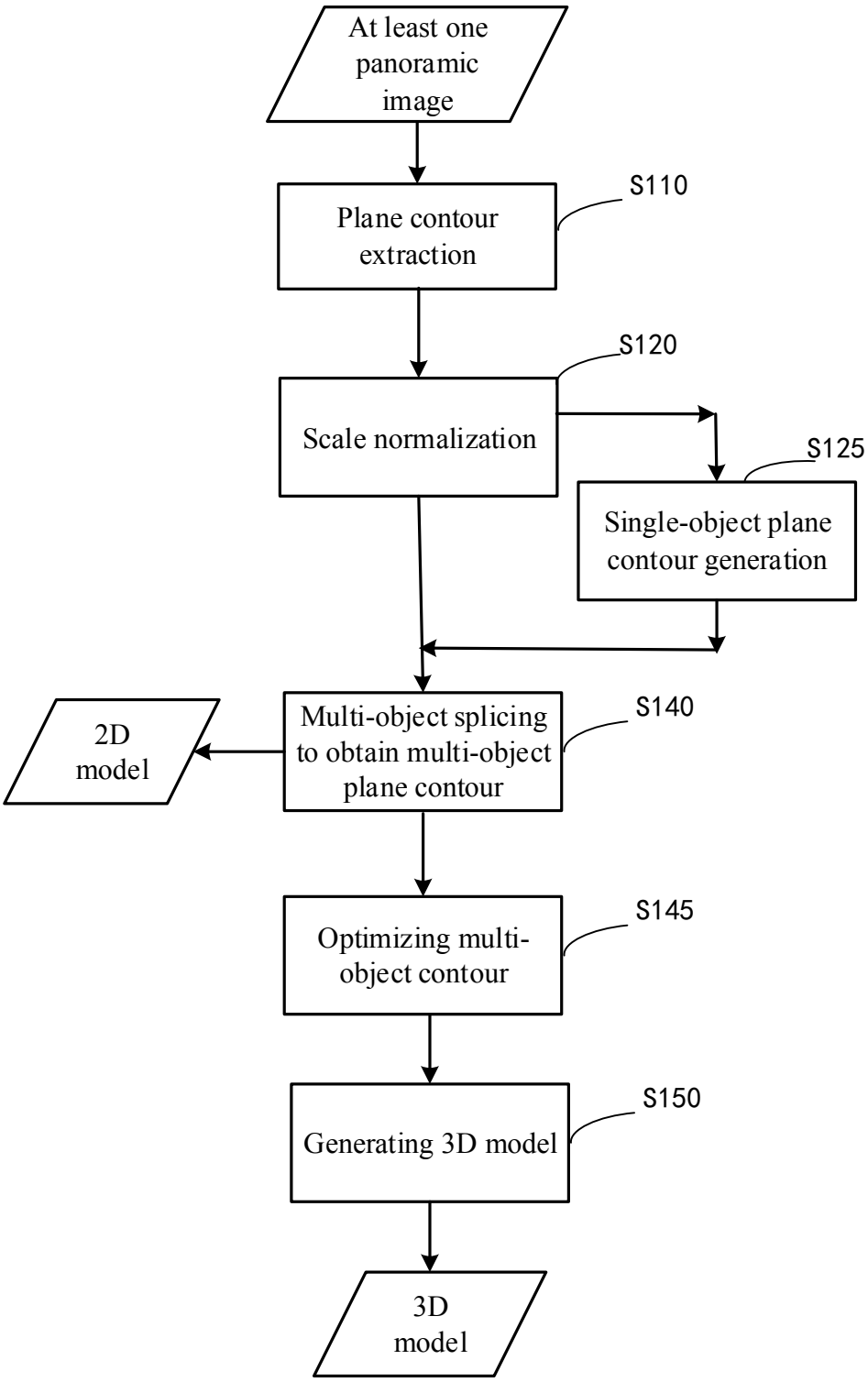
At least one panoramic image
Plane contour extraction
S110
Scale normalization
S120
Single-object plane contour generation
S125
Multi-object splicing to obtain multi-object plane contour
S140
2D model
Optimizing multi-object contour
S145
Generating 3D model
S150
3D model

FIG. 2

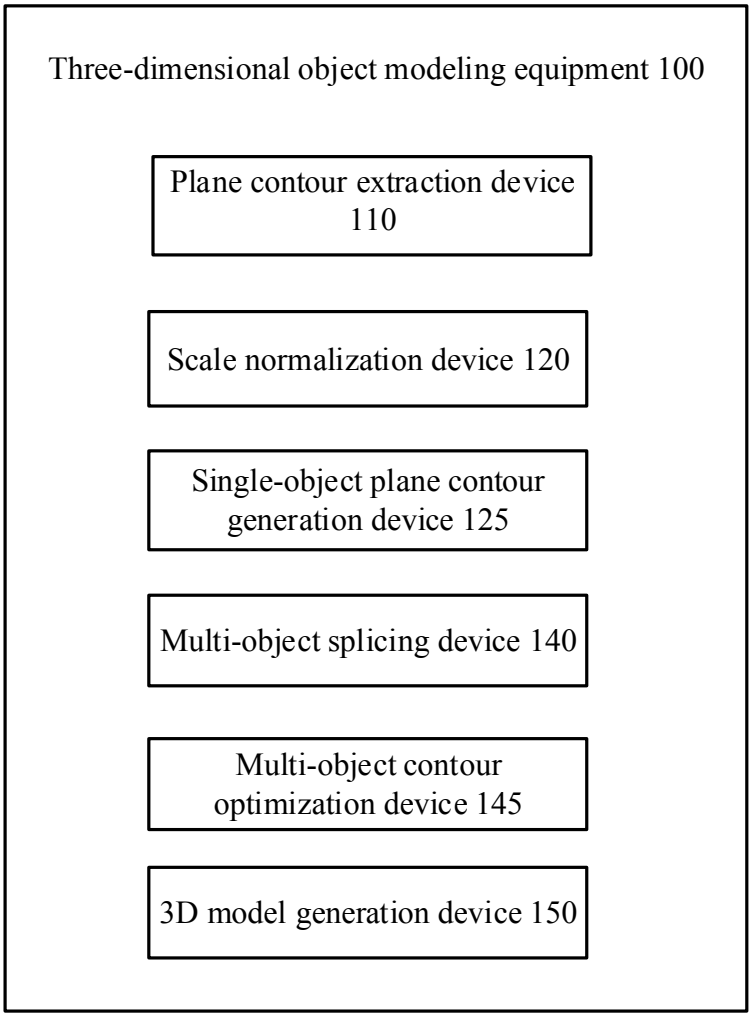
Three-dimensional object modeling equipment 100
Plane contour extraction device 110
Scale normalization device 120
Single-object plane contour generation device 125
Multi-object splicing device 140
Multi-object contour optimization device 145
3D model generation device 150

FIG. 3

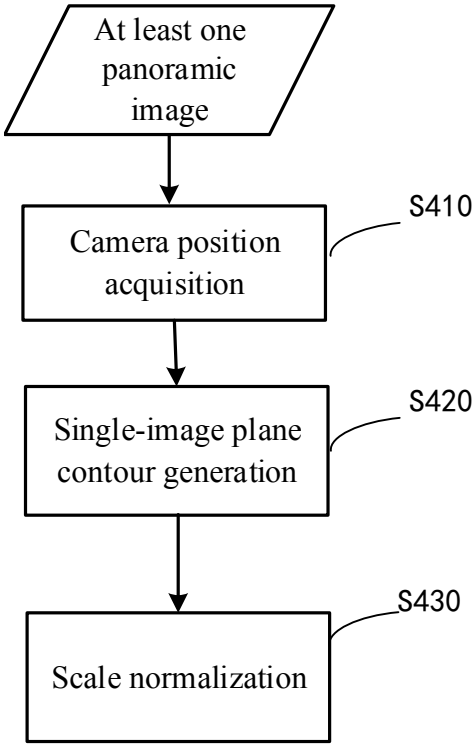
At least one panoramic image
Camera position acquisition
S410
Single-image plane contour generation
S420
Scale normalization
S430

FIG. 4A

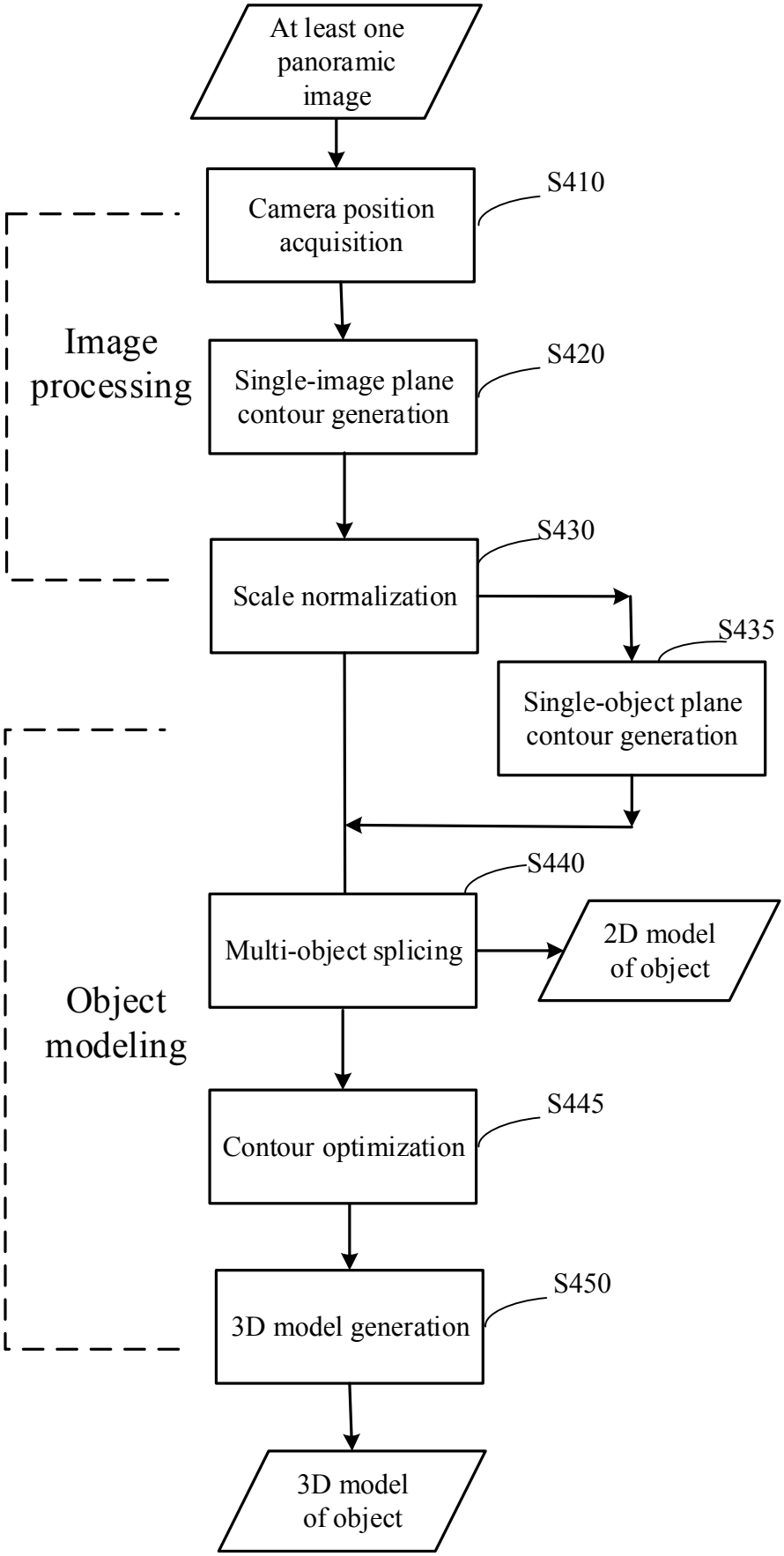
At least one panoramic image
Camera position acquisition
S410
Image processing
Single-image plane contour generation
S420
Scale normalization
S430
Single-object plane contour generation
S435
Object modeling
Multi-object splicing
S440
2D model of object
Contour optimization
S445
3D model generation
S450
3D model of object

FIG. 4B

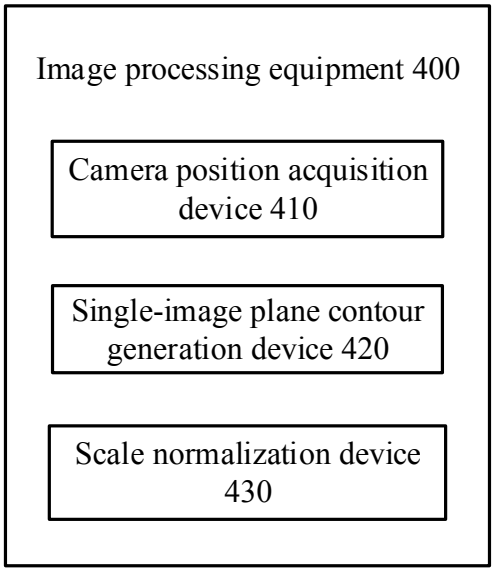
Image processing equipment 400
Camera position acquisition device 410
Single-image plane contour generation device 420
Scale normalization device 430

FIG. 4C

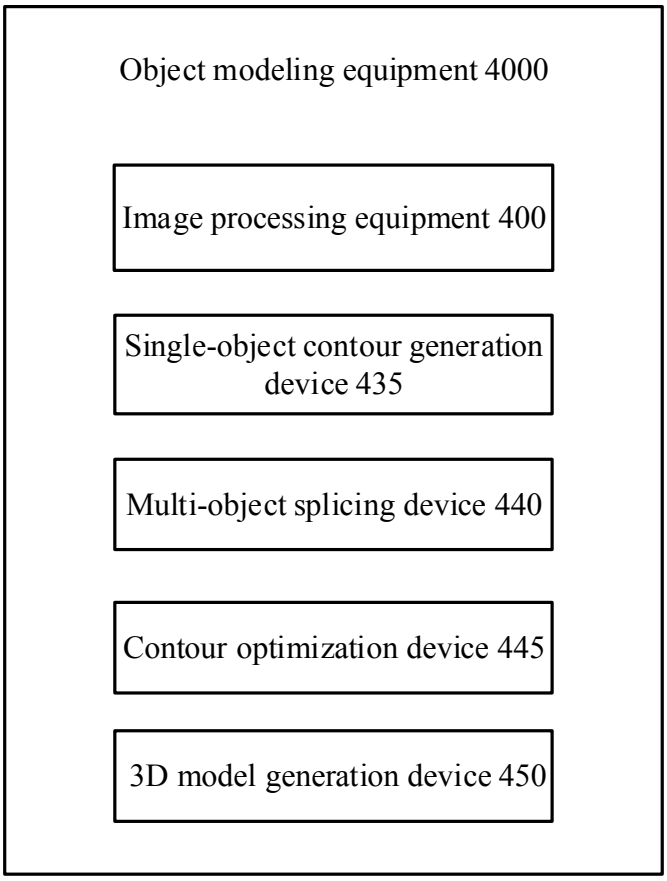
Object modeling equipment 4000
Image processing equipment 400
Single-object contour generation device 435
Multi-object splicing device 440
Contour optimization device 445
3D model generation device 450

FIG. 4D

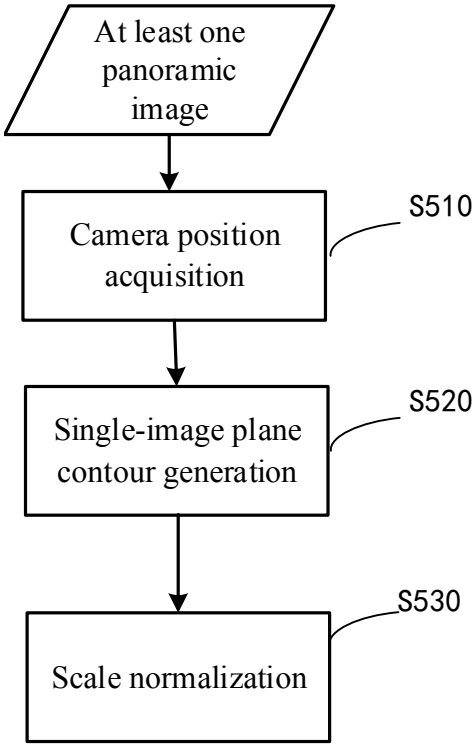
At least one panoramic image
Camera position acquisition
S510
Single-image plane contour generation
S520
Scale normalization
S530

FIG. 5A

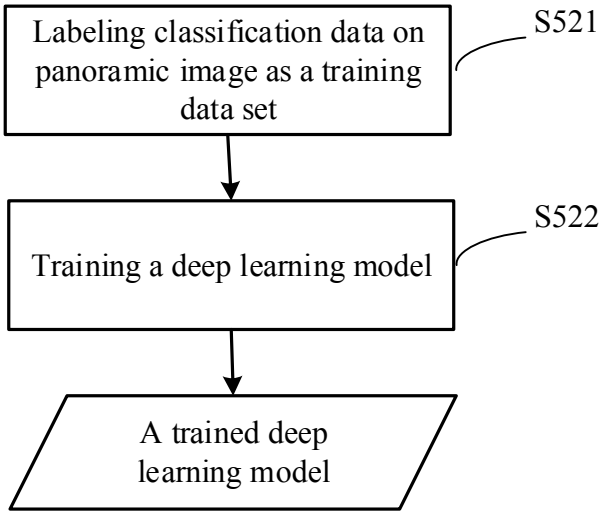
Labeling classification data on panoramic image as a training data set
S521
Training a deep learning model
S522
A trained deep learning model

FIG. 5B

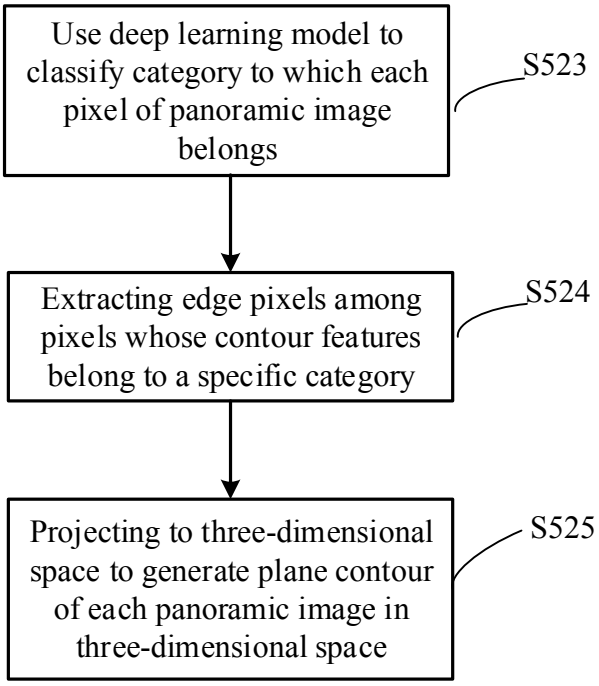
Use deep learning model to classify category to which each pixel of panoramic image belongs
S523
Extracting edge pixels among pixels whose contour features belong to a specific category
S524
Projecting to three-dimensional space to generate plane contour of each panoramic image in three-dimensional space
S525

FIG. 5C

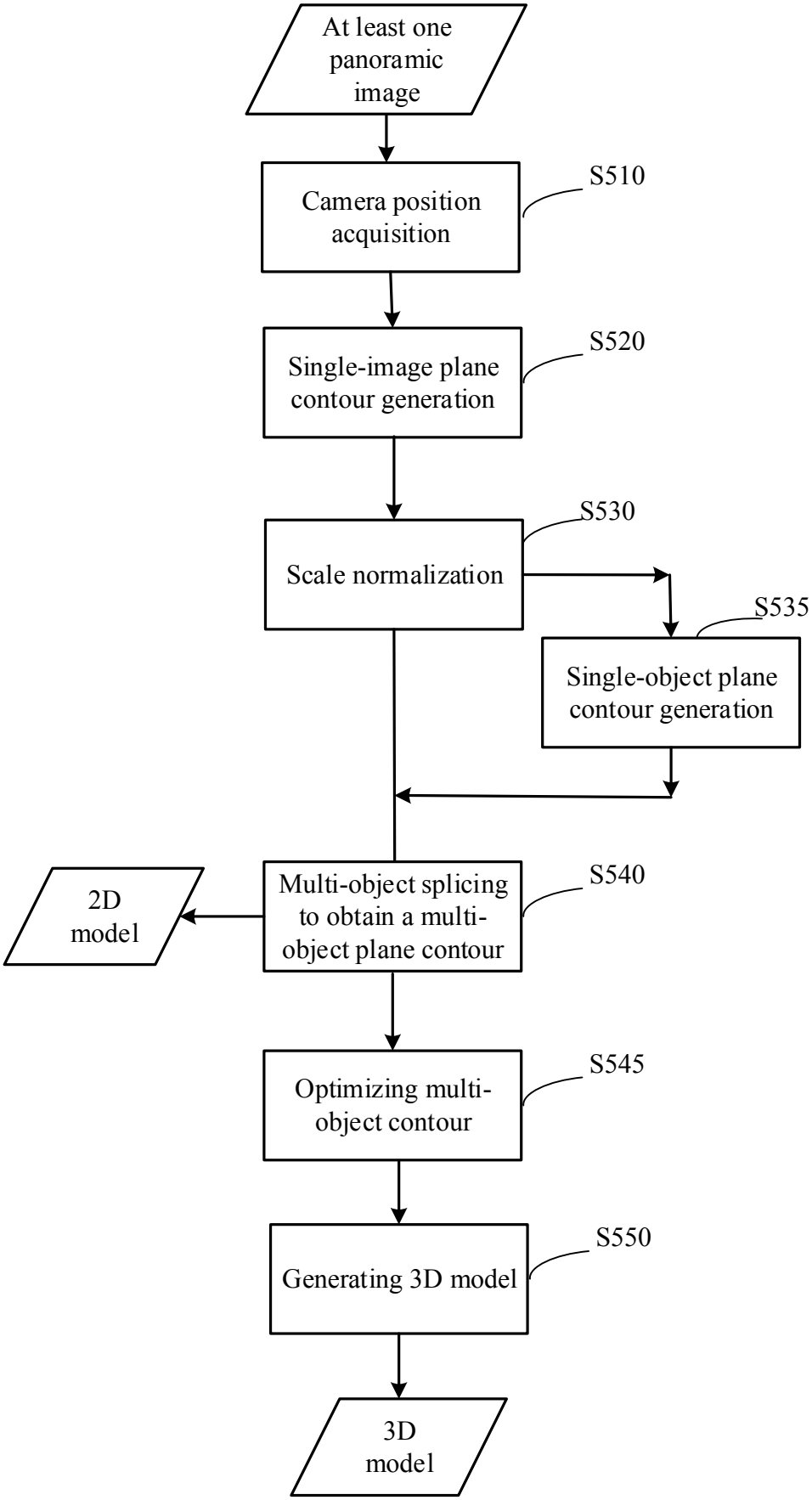
At least one panoramic image
Camera position acquisition
S510
Single-image plane contour generation
S520
Scale normalization
S530
Single-object plane contour generation
S535
2D model
Multi-object splicing to obtain a multi-object plane contour
S540
Optimizing multi-object contour
S545
Generating 3D model
S550
3D model

FIG. 5D

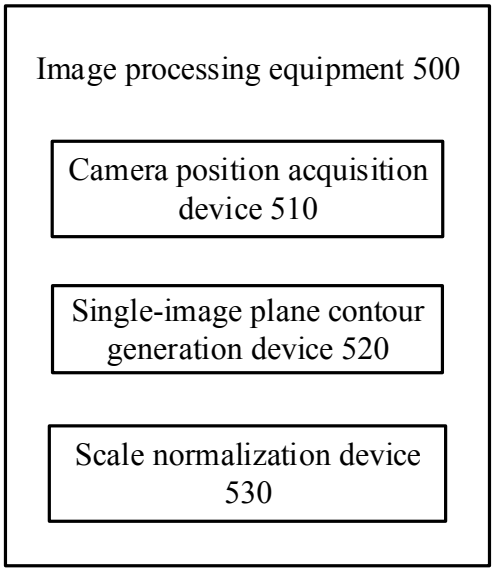
Image processing equipment 500
Camera position acquisition device 510
Single-image plane contour generation device 520
Scale normalization device 530

FIG. 5E

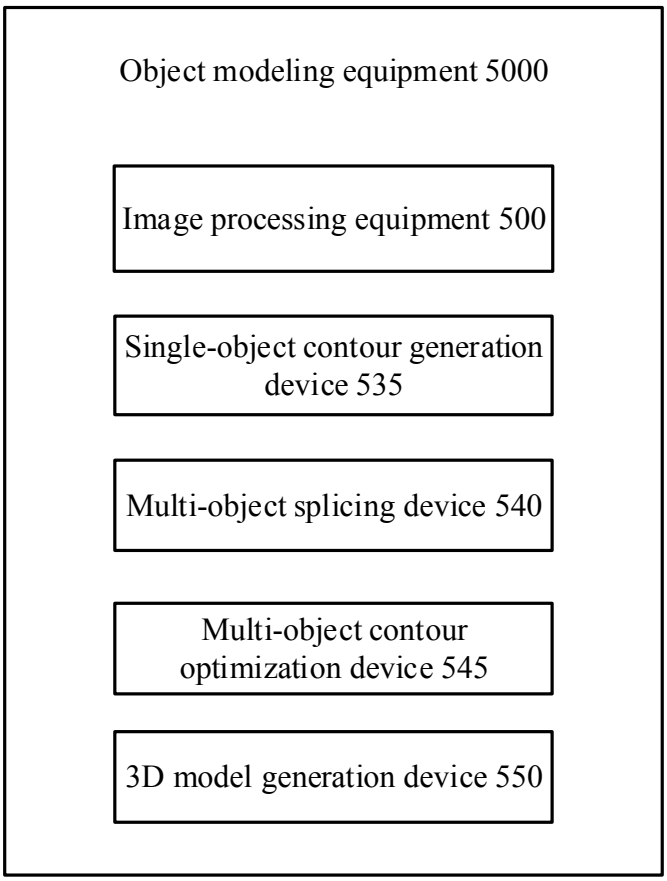
Object modeling equipment 5000
Image processing equipment 500
Single-object contour generation device 535
Multi-object splicing device 540
Multi-object contour optimization device 545
3D model generation device 550

FIG. 5F

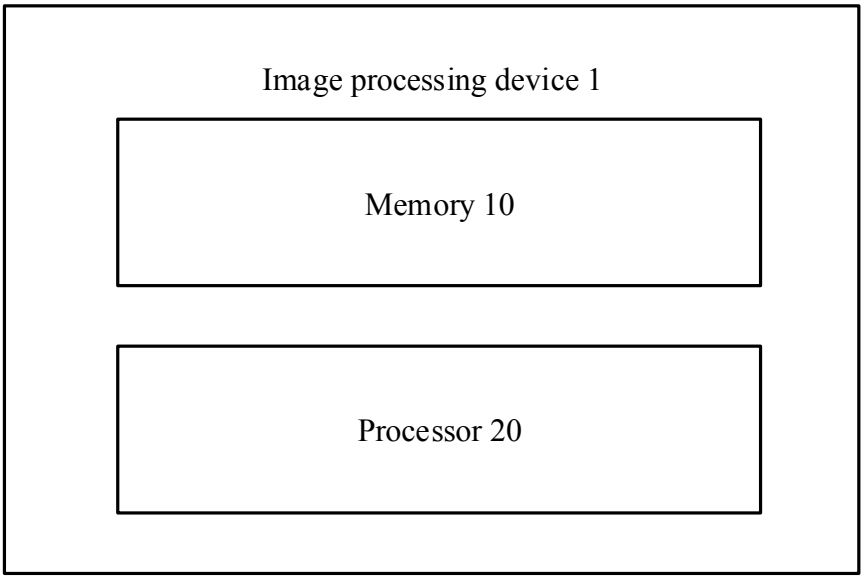

FIG. 6