DRAWINGS

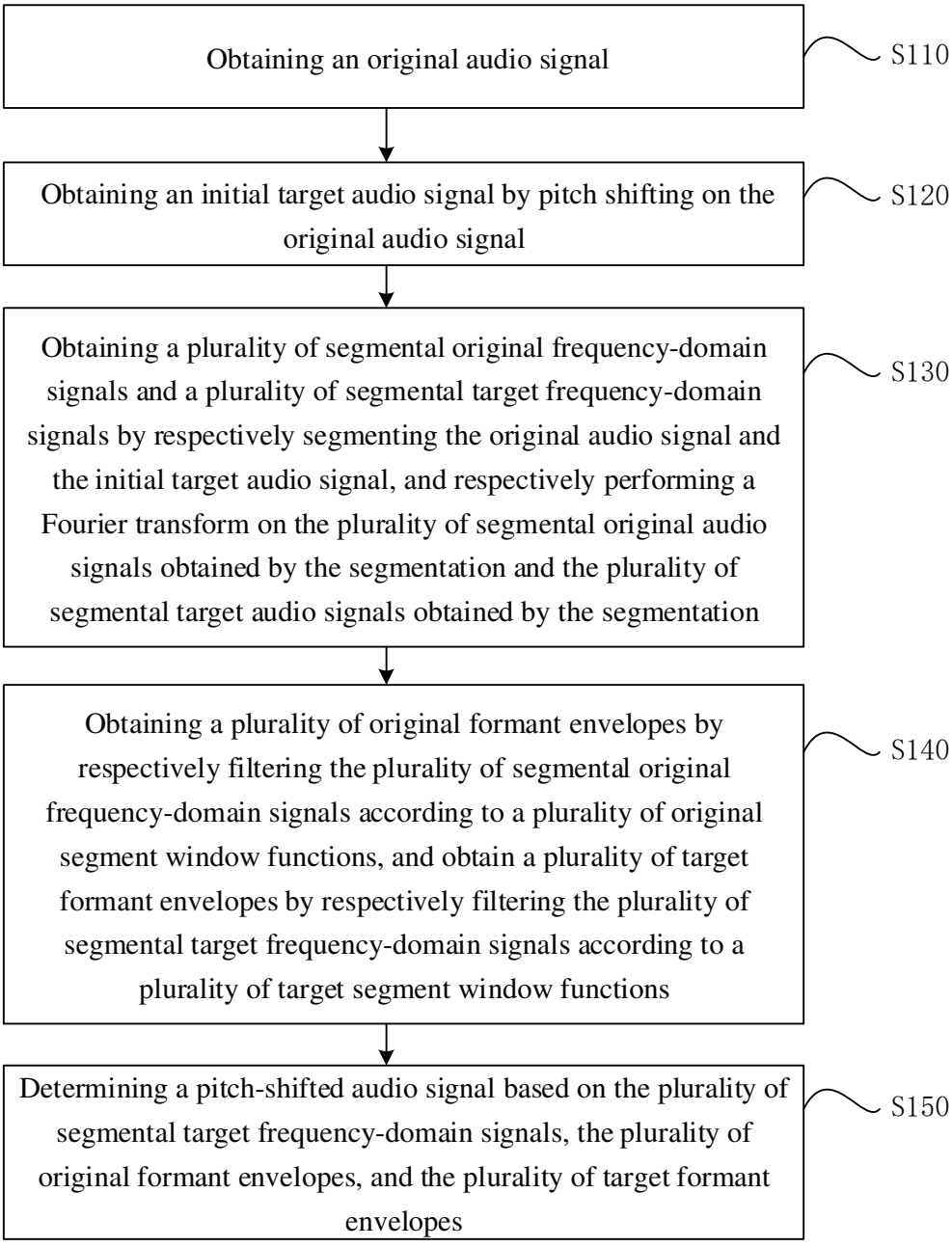

FIG. 1A

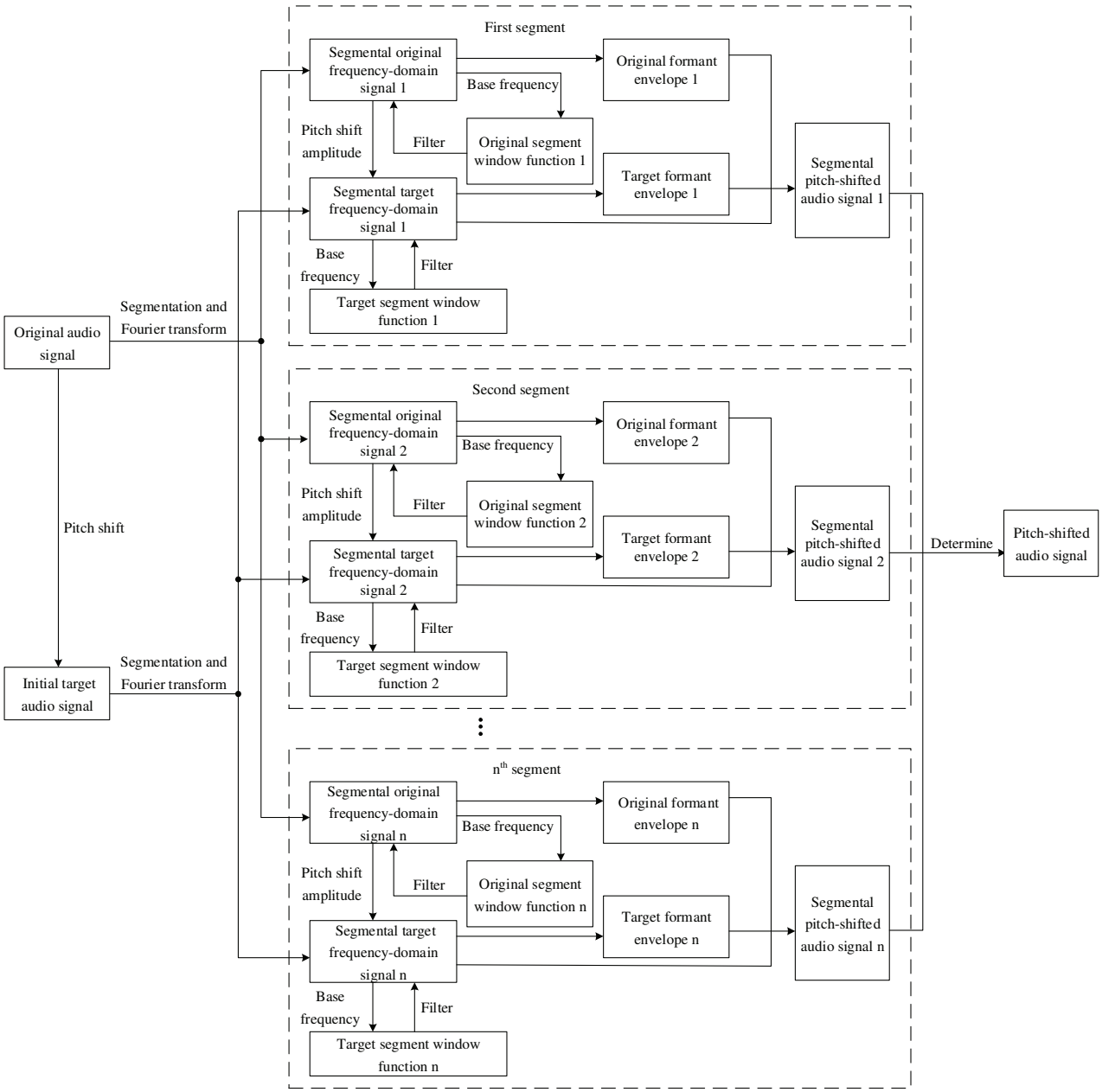
First segment
Segmental original frequency-domain signal 1
Base frequency
Original formant envelope 1
Pitch shift amplitude
Filter
Original segment window function 1
Segmental target frequency-domain signal 1
Target formant envelope 1
Segmental pitch-shifted audio signal 1
Base frequency
Filter
Target segment window function 1
Segmentation and Fourier transform
Original audio signal
Second segment
Segmental original frequency-domain signal 2
Base frequency
Original formant envelope 2
Pitch shift amplitude
Filter
Original segment window function 2
Segmental target frequency-domain signal 2
Target formant envelope 2
Segmental pitch-shifted audio signal 2
Determine
Pitch-shifted audio signal
Pitch shift
Base frequency
Filter
Target segment window function 2
Segmentation and Fourier transform
Initial target audio signal
nth segment
Segmental original frequency-domain signal n
Base frequency
Original formant envelope n
Pitch shift amplitude
Filter
Original segment window function n
Segmental target frequency-domain signal n
Target formant envelope n
Segmental pitch-shifted audio signal n
Base frequency
Filter
Target segment window function n

FIG. 1B

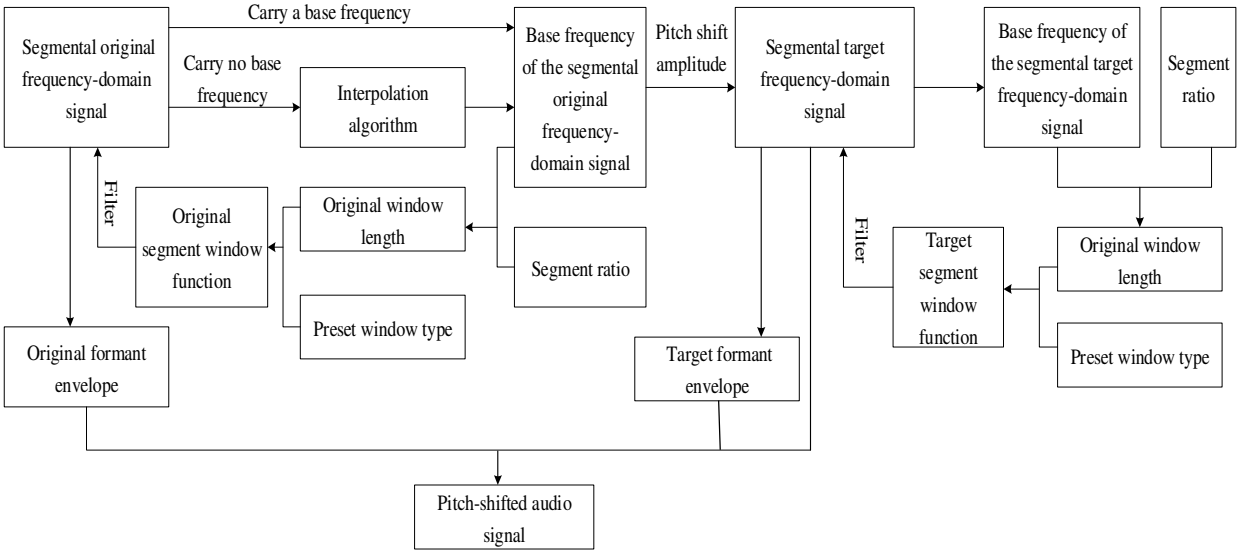
Segmental original frequency-domain signal
Carry a base frequency
Carry no base frequency
Interpolation algorithm
Base frequency of the segmental original frequency-domain signal
Pitch shift amplitude
Segmental target frequency-domain signal
Base frequency of the segmental target frequency-domain signal
Segment ratio
Filter
Original segment window function
Original window length
Segment ratio
Preset window type
Original formant envelope
Target formant envelope
Filter
Target segment window function
Original window length
Preset window type
Pitch-shifted audio signal

FIG. 2

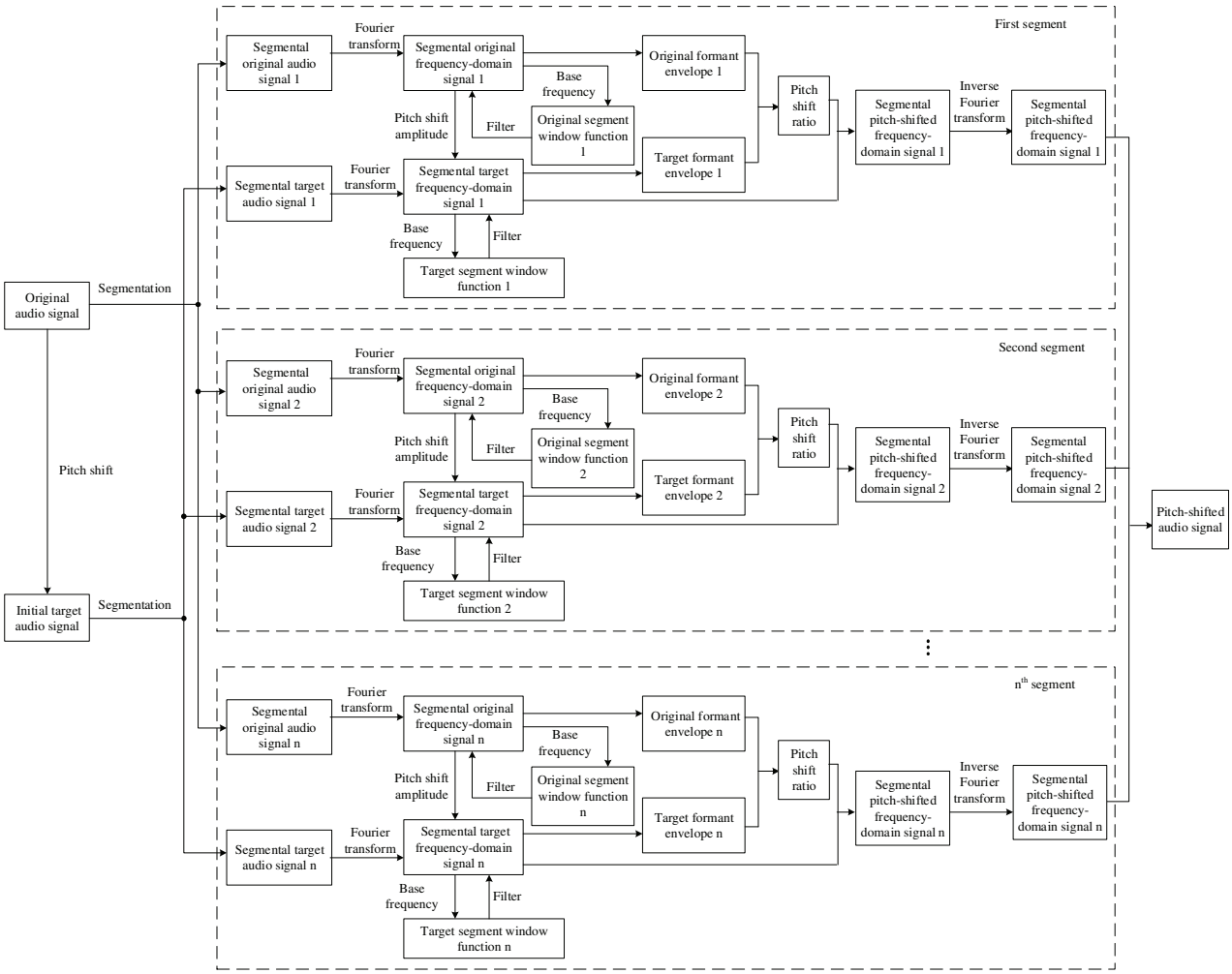
Original audio signal
Segmentation
Pitch shift
Initial target audio signal
Segmentation
First segment
Segmental original audio signal 1
Fourier transform
Segmental original frequency-domain signal 1
Base frequency
Original formant envelope 1
Pitch shift amplitude
Filter
Original segment window function 1
Pitch shift ratio
Segmental pitch-shifted frequency-domain signal 1
Inverse Fourier transform
Segmental pitch-shifted frequency-domain signal 1
Segmental target audio signal 1
Fourier transform
Segmental target frequency-domain signal 1
Target formant envelope 1
Base frequency
Filter
Target segment window function 1
Second segment
Segmental original audio signal 2
Fourier transform
Segmental original frequency-domain signal 2
Base frequency
Original formant envelope 2
Pitch shift amplitude
Filter
Original segment window function 2
Pitch shift ratio
Segmental pitch-shifted frequency-domain signal 2
Inverse Fourier transform
Segmental pitch-shifted frequency-domain signal 2
Segmental target audio signal 2
Fourier transform
Segmental target frequency-domain signal 2
Target formant envelope 2
Base frequency
Filter
Target segment window function 2
nth segment
Segmental original audio signal n
Fourier transform
Segmental original frequency-domain signal n
Base frequency
Original formant envelope n
Pitch shift amplitude
Filter
Original segment window function n
Pitch shift ratio
Segmental pitch-shifted frequency-domain signal n
Inverse Fourier transform
Segmental pitch-shifted frequency-domain signal n
Segmental target audio signal n
Fourier transform
Segmental target frequency-domain signal n
Target formant envelope n
Base frequency
Filter
Target segment window function n
Pitch-shifted audio signal

FIG. 3

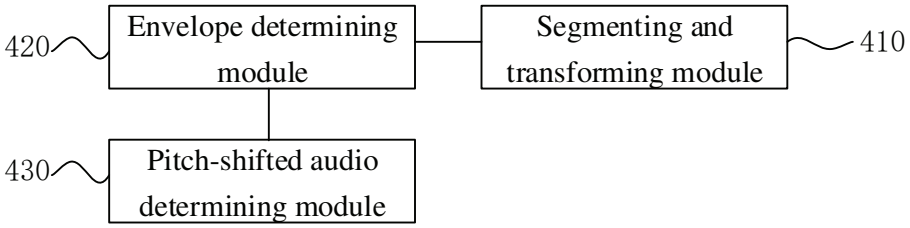
420
Envelope determining module
Segmenting and transforming module
410
430
Pitch-shifted audio determining module

FIG. 4

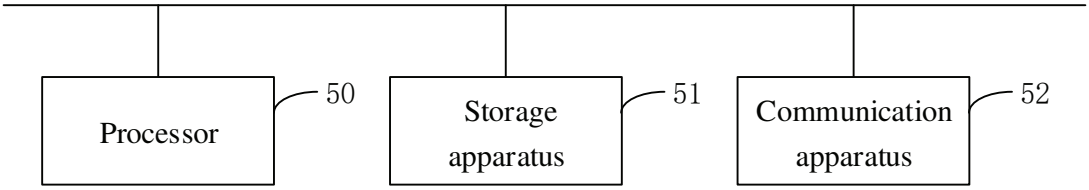
Processor
50
Storage apparatus
51
Communication apparatus
52

FIG. 5