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(54) **Title:** SCALABLE NEURAL TENSOR NETWORK WITH MULTI-ASPECT FEATURE INTERACTIONS

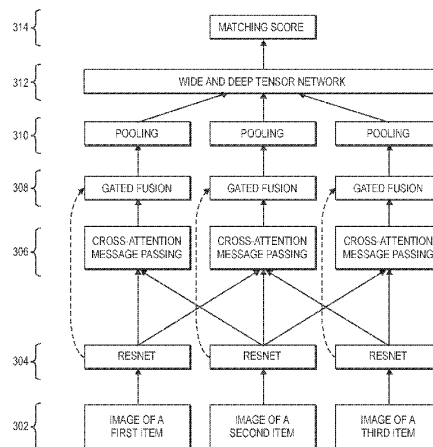


FIG. 3

(57) **Abstract:** A method includes determining a set of regions for each of a first plurality of images of a first item type, a second plurality of images of a second item type, and a third plurality of images of a third item type. The method also includes for each region in each set of regions of the images, generating, by the processing computer, a vector representing the region, and then generating a plurality of aggregated messages using the vectors corresponding to combinations of images of different types of items, the images being from the first, second, and third plurality of images. Then, unified embeddings are generated for the images in the first, second, and third plurality of images, respectively, using aggregated messages in the plurality of aggregated messages. Matching scores associated with combinations of the images are created using the unified embeddings and a machine learning model.

[Continued on next page]

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