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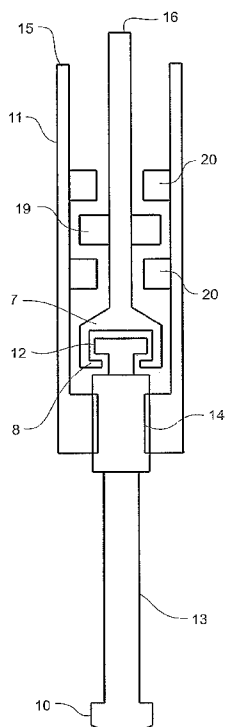


FIG. 2

(57) Abstract: Drilling apparatus having a drillstring and operable to rotate the drillstring and operable to provide vibration axially to the drill head. Relies upon vibrational apparatus positioned to provide the vibration reliant upon interactive magnetic arrays, as a consequence of the relative rotation caused by a mechanical input to at least one array or set of arrays of the vibrational apparatus. One of the arrays or sets of arrays moves synchronously, in rotation, with the drillstring when the drillstring is rotated.

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