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(54) Title: IMPROVED EBULLATED BED REACTOR AND PROCESS

(57) Abstract: An improved ebullated bed reactor, a method for modifying an existing ebullated bed reactor to improve performance, and associated processes for improving the performance of ebullated reactors during hydroprocessing operation. In one aspect, the addition of a catalyst withdrawal outlet located at the top of the ebullated bed reactor allows for fine spent catalyst to be withdrawn during reactor operation and for certain performance improvements to be realized.

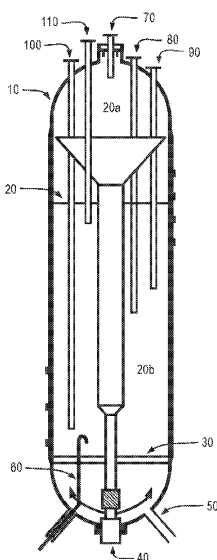


FIG. 1

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- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
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