

### Unified Fracking Device for Enhanced Recovery from Conventional Reservoirs, Hydrates and Shales using IITM Technology Available for Licensing

#### PROBLEM STATEMENT

- In the Conventional Fracking is performed in the wellbores that are at last stage of production or are dried out to enhance recovery of oil or gas.
- Further, for enhancing the recovery of oil or gas, the fracking is performed to elongate the **existing perforations** or to **create new cracks** that result in **release of remaining oil and gas**, which is **costlier process**.
- Hence, there is a need to address said issues in efficient manner.

#### INTELLECTUAL PROPERTY

IITM IDF Ref. 1596; IN Patent No: 457966

#### TECHNOLOGY CATEGORY/ MARKET

**Technology:** Fracking Device;

**Industry & Application:** Water Management Solution, Hydraulic market, etc.

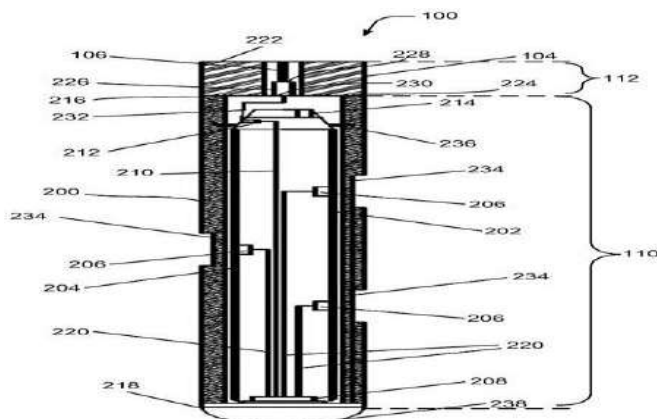
**Market:** The global hydraulic fracturing market is projected to grow at a **CAGR of 8.6%** during **2024-2032**.

#### TRL (TECHNOLOGY READINESS LEVEL)

**TRL-4/5**, Proof of Concept ready, tested & validated in lab,

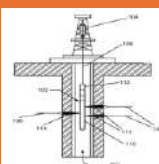
#### TECHNOLOGY

- The present invention describes a **fracking device for generating shock waves** in a well bore.
- The fracking device comprises a **fracking gun**.
- Said fracking gun comprises a **vacuumized cylinder** containing vacuum inside, wherein said vacuum cylinder is disposed inside a **cavity of the cartridge**.
- Further, Fracking gun comprises an **explosive pod** positioned on an inner surface of the **vacuumized cylinder** to support **explosive charges**.

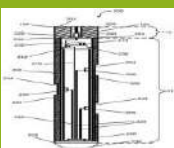


**Fig.1: Illustrates cross-sectional view of Fracking device;**

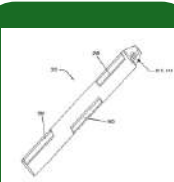
- Further Fracking gun comprises a **coupler**.



**Coupler** coupled to the open end of the cartridge,



The **coupler** is to detachably couple the fracking gun with a wire line of an external unit, & the coupler comprises an **adapter** to couple to the wire line



The **adapter** receives signals from the wire line & supplies the signals to the vacuumized cylinder, wherein the adapter isolates the wire line from the vacuumized cylinder

#### RESEARCH LAB

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### KEY FEATURES / VALUE PROPOSITION

#### ❖ Technical Perspective:

- Claimed invention is **simple, effective and cheap and efficient process.**
- The fracking device with the vacuumized cylinder generates an **extreme instantaneous** under **balance shock waves** which cause a **high intensity negative suction blast**, thereby **enhancing** the effectiveness of the fracking.
- The extreme instantaneous underbalance shock waves lead to **elongation of primary fractures** from existing perforations and creation of secondary and tertiary fractures.

#### ❖ Industrial Perspective:

- The claimed invention allows **multiple applications of shock waves** at the **same location** leading to **high branching of fractures.**
- **Cost effective process** for implementation.

### IMAGE

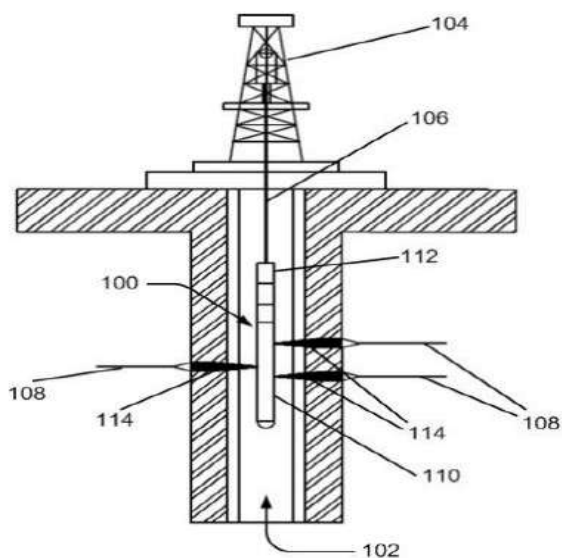


FIG. 2: Illustrates a fracking device implemented in a wellbore for generating shock waves;

### IMAGE

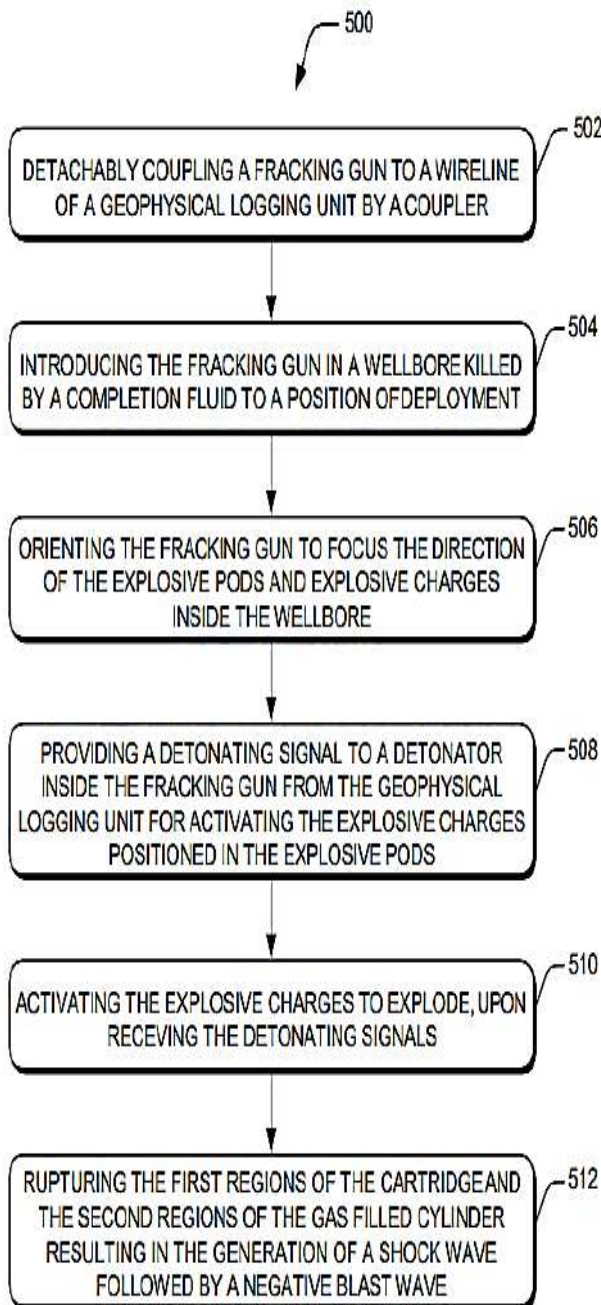


FIG. 3: Illustrates a procedure of performing fracking inside the 5 wellbore by the fracking device of Fig. 2.

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