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**Gettis**

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(54) **DOWNHOLE PRESSURE WAVE GENERATING DEVICE**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 34 days.

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(51) **Int. Cl.**

**E21B 37/00** (2006.01)

**E21B 28/00** (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC ..... **E21B 37/00** (2013.01); **E21B 28/00** (2013.01); **E21B 34/066** (2013.01); **E21B 37/08** (2013.01);

(Continued)

(58) **Field of Classification Search**

CPC ..... E21B 37/00; E21B 28/00; E21B 34/066; E21B 43/003; E21B 1/00; E21B 31/113; E21B 43/26; E21B 4/14; E21B 37/08

See application file for complete search history.

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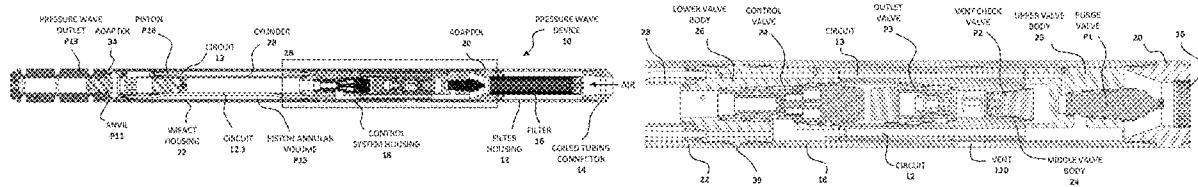
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(57) **ABSTRACT**

A device for generating pressure waves in a well or a wellbore. The device includes a housing containing an impact-generating mechanism for generating the pressure waves and a connector for connecting the housing to a conveyor for transporting the device to any desired location within the well or the wellbore. The device may be used for a number of downhole applications such as cleaning perforations, fracturing processes, vibration of a casing to prevent fluid flow in a cemented annulus, hydraulic jar operations for freeing stuck downhole objects, generating data to optimize pumping parameters and as an enhancement to percussion drilling techniques.

**19 Claims, 5 Drawing Sheets**



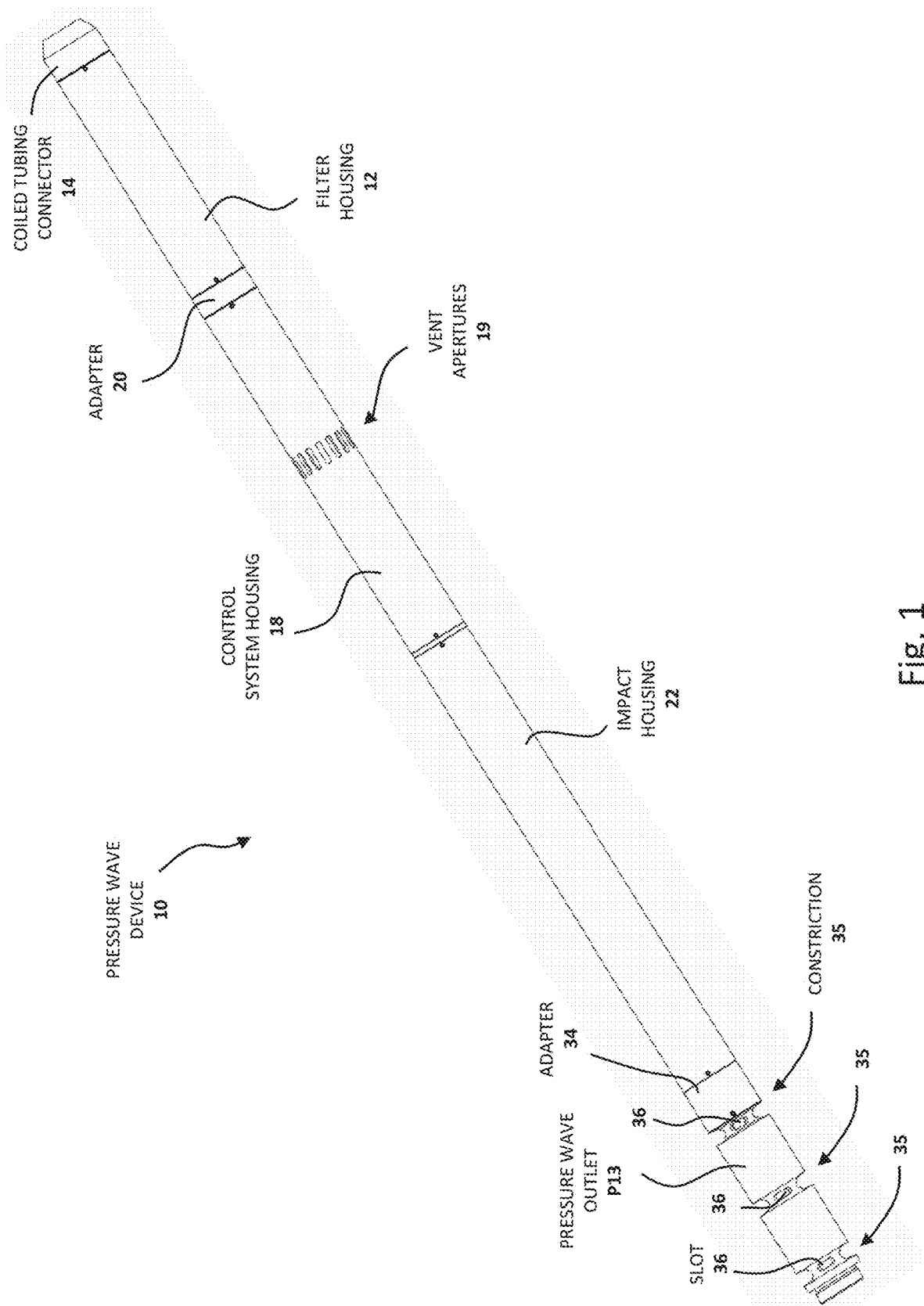


Fig. 1

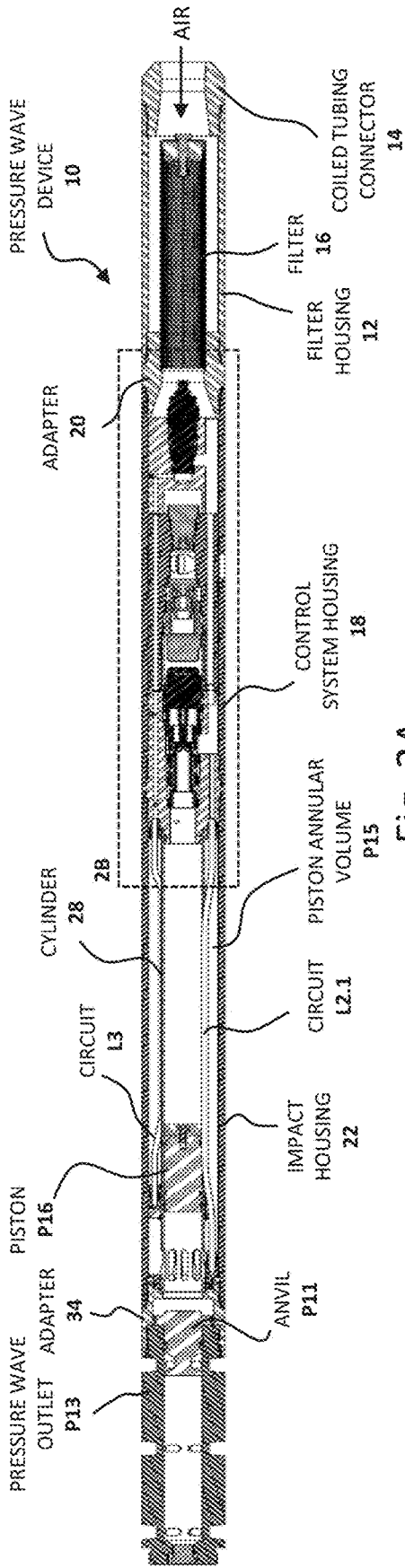


Fig. 2A

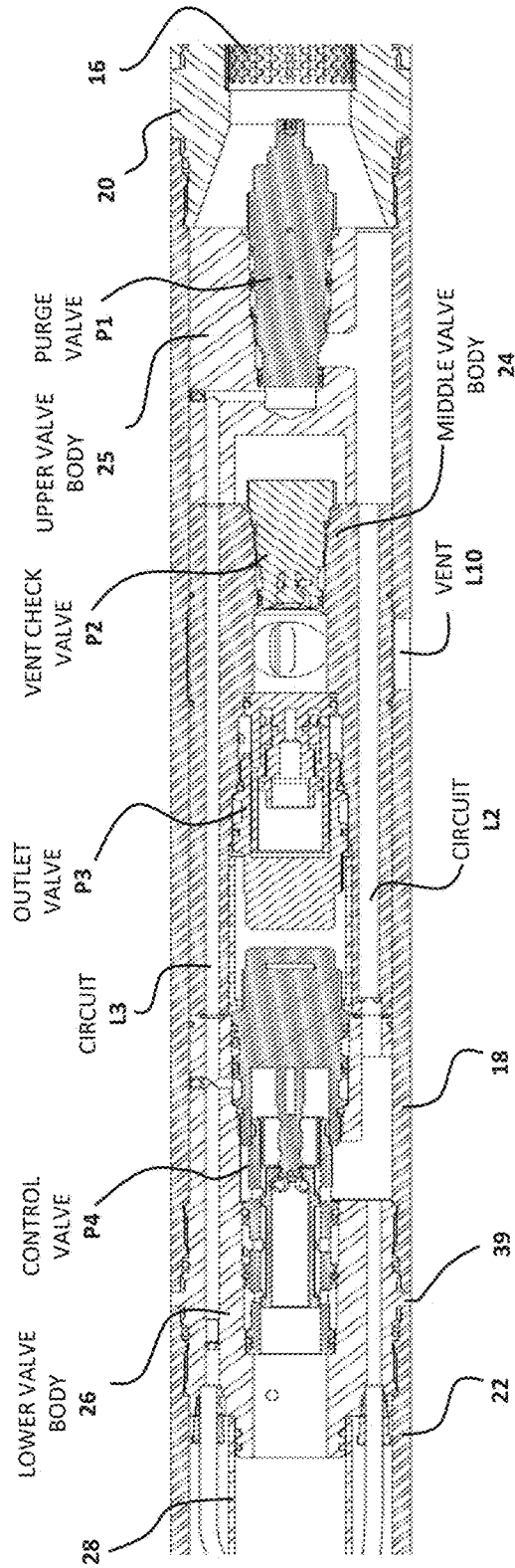


Fig. 2B



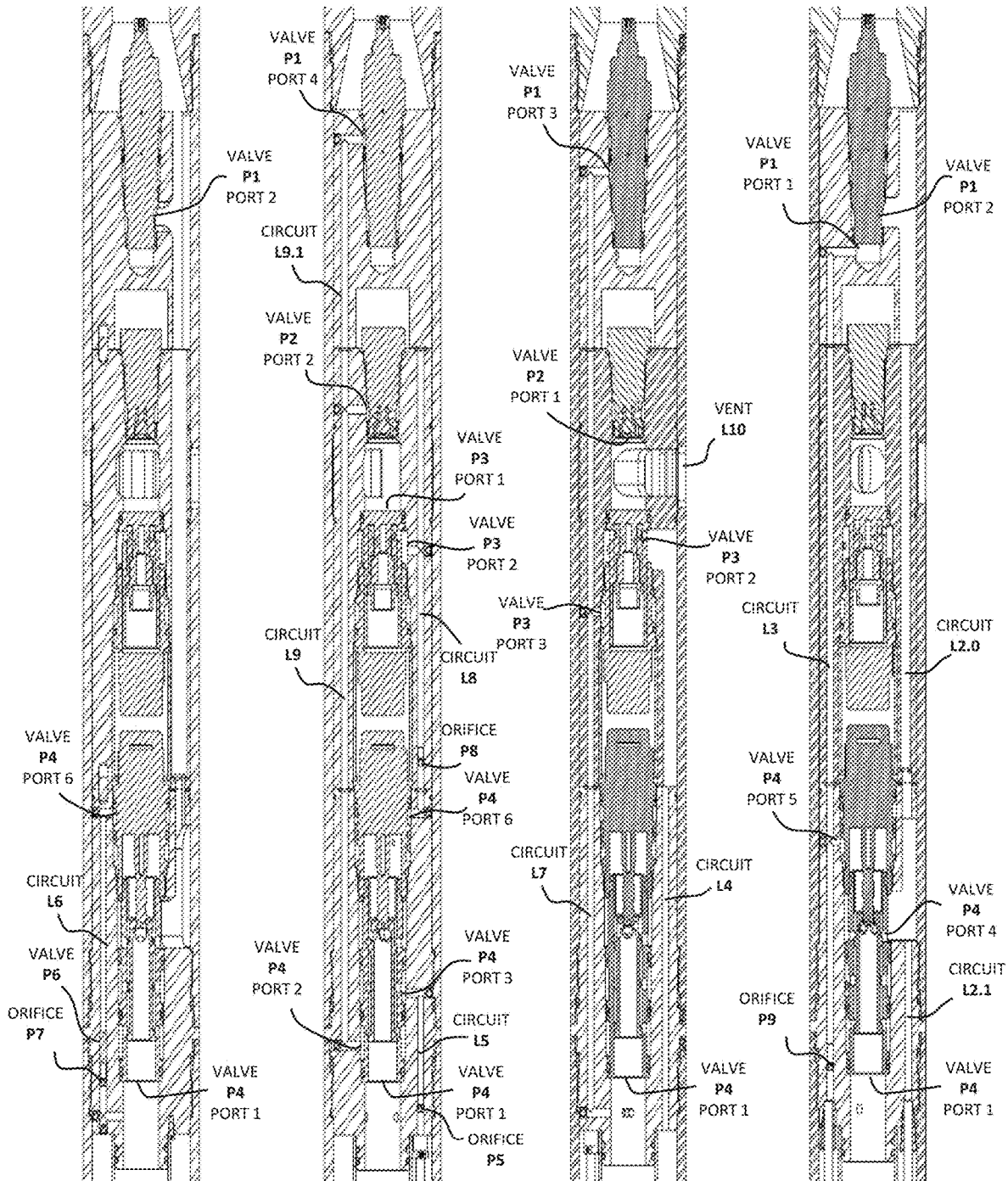


Fig. 3A

Fig. 3B

Fig. 3C

Fig. 3D