



Precise portable rescue device for fast avalanche victim localization

THE INVENTION

Portable rescue device and localization method for locating avalanche victims. It exploits the spatial diversity provided by an array of magnetic vector sensors to improve precision and reduce the time taken for locating the victim.

Innovative aspects and advantages

- ✓ Reduces localization time
- ✓ Better sensitivity (signal search)
- ✓ Straighter path (coarse search)
- ✓ Precise location (fine search)
- ✓ No pinpointing

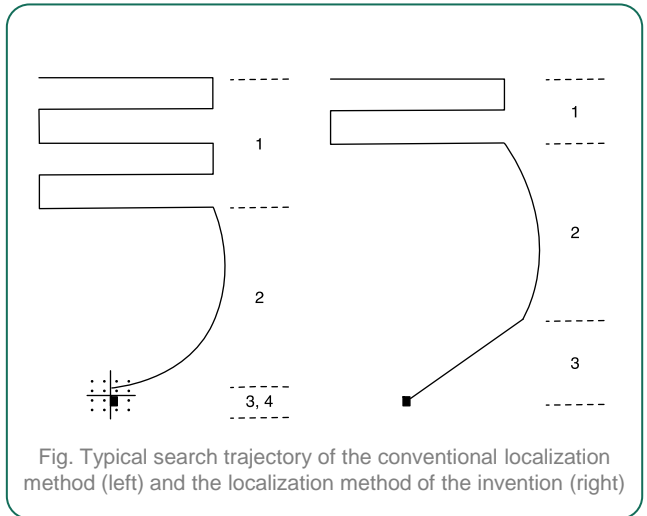
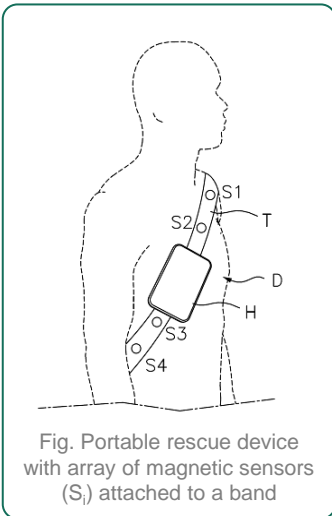
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State of the art

Avalanche victim detectors (AVDs) are portable devices that allow for the localization of people buried in the snow of an avalanche. Nowadays, AVD's of the market present several drawbacks that limit the **speed of localization** at each stage of the conventional localization method.

1. The sensitivity of the AVD is low, so a long signal search is needed (**signal search**).
2. Once the signal is found, the AVD follows a curved path (**coarse search**).
3. The reliability of the AVD path drops near the victim (2 m), and a crossways power search is performed (**fine search**).
4. Due to the inaccuracy of the fine search, the rescuer must pinpoint the ground with a probe (**pinpointing**).

Device of the invention

Portable electromagnetic transmitter-receiver for locating avalanche victims. It is equipped with an array of magnetic vector sensors arranged to exploit the inherent spatial diversity of the received signal.

It allows for detecting a portable electromagnetic transmitter with high sensitivity using array processing techniques.

It allows for estimating the spatial position of a portable electromagnetic transmitter using array processing techniques.

Localization method of the invention

1. **Signal search:** An uncertainty area is covered through a predefined trail until the signal is detected with high sensitivity.
2. **Coarse search:** The magnetic field lines are followed only until the rescue user is about 10 meters away of the victim.
3. **Fine search:** The position of the victim is estimated and a straight path is followed to such position.

We provide an alternative which achieves a faster and easier rescue of an avalanche victim than those provided by the devices available in the market.



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