CONVERTIBLE SEAT

IITM Technology Available for Licensing

PROBLEM STATEMENT

- Conventional motor vehicle seat assemblies provided in modern motor vehicles are primarily designed to provide a support platform that is designed to receive a motor vehicle occupant in a seated or reclined position. However, such vehicle seat assemblies often lack mechanism for entering within & exiting outside the vehicle.
- This poses a **difficulty** for **disabled & aged persons** in **boarding & de-boarding** of their vehicles, need **extra assistance** & **inconvenient** process.
- Hence, there is a need to address the issues.

INTELLECTUAL PROPERTY

IITM IDF Ref. 2403; IN Patent No: 478219

TECHNOLOGY CATEGORY/ MARKET

Technology: Convertible Seat;
Industry & Application: Automative, Assistive Device, Civil Vehicle;
Market: The global Convertible Automotive Seat market is projected to grow at a **CAGR** of **5.27%** during **2024-2029.**

TRL (TECHNOLOGY READINESS LEVEL)

TRL-4, Proof of Concept ready, tested in lab.

TECHNOLOGY

- Present invention describes a **convertible seat**, wherein the convertible aspect of the seat refers to the **change from a seat in a car to a wheelchair** that can be used outside a car.
- Said convertible seat comprises a **swivel assembly** configured to simultaneously rotate and move the convertible seat.
- Said swivel assembly comprises a **linkage member of the convertible seat** having a cylindrical threaded shaft coupled with a threaded slit of a plate attached to a frame.

IMAGE

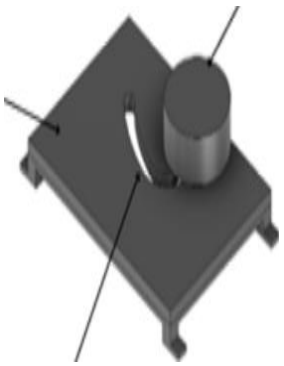

FIG.1A

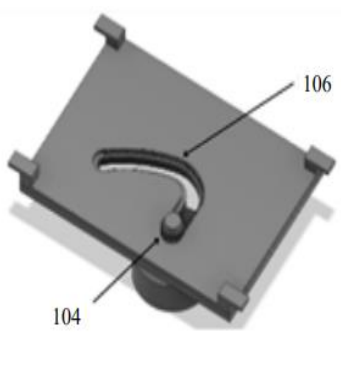

FIG.1B

FIG.1A & 1B: Illustrates perspective views of a swivel assembly of a convertible seat.

- **Rotation** of the **linkage member** rotates the cylindrical threaded shaft about its center while moving the linkage member in a **path defined by the threaded slit**.
- The convertible seat also includes a **wheel retraction assembly** for **retracting one** or **more wheels** at the bottom of the convertible seat.
- A **locking element** is configured to **lock or unlock movement** of the convertible seat.
- The **swivel assembly** configured to simultaneously **rotate & move** the convertible seat after the convertible seat is lifted to a **pre-determined height** by a jack mechanism in a vertical direction.
- When the convertible seat is a seat of the vehicle, the motor of the jack mechanism may be controlled by a motor controller installed with a seat.

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KEY FEATURES / VALUE PROPOSITION

❖ *Technical Perspective:*

- Present invention facilitates the process of **boarding and de-boarding the vehicle easier & convenient** for differently abled person, physical challenged person or aged persons.
- The claimed **convertible seat** provides **stand alone service** to said needy which eliminates the need of seeking assistance from another person for the same.
- Provides Simple compliant mechanism that will automatically readjust and lock as it allows for certain room for error in the entrance as well.
- Facilitates the **locking mechanism**, wherein it is for **locking the wheelchair onto the base frame to be taken into the car**, not for an additional piece to be mounted to the wheelchair.

❖ *User Perspective:*

- The claimed convertible seat provides an **efficient stand-alone seat for the differently abled person.**
- **Eliminate the need of seeking assistance** from another person for the same for shifting from vehicle.
- The claimed feature **improves** the user physical & psychological well being.

IMAGE

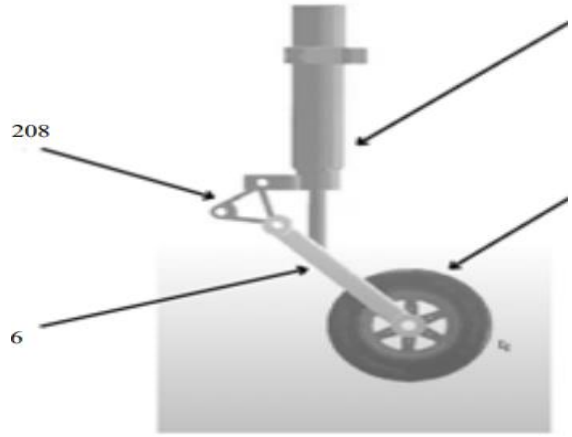


Fig. 2(Above): Depicts a side view of a wheel retraction mechanism of the convertible seat;

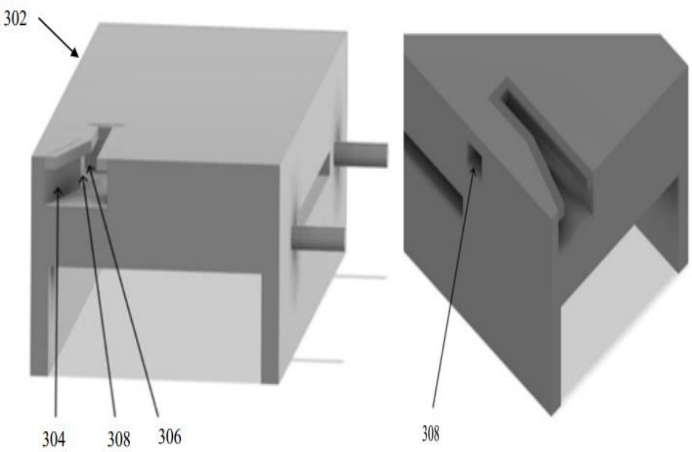
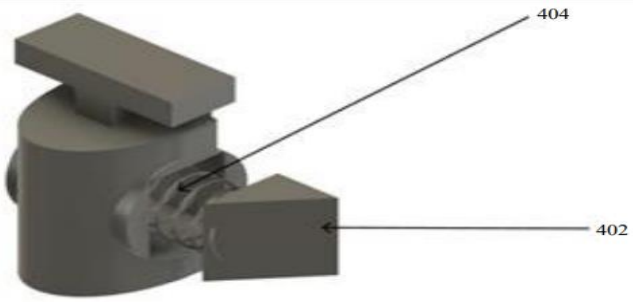


FIG 3A & 3B (above): Illustrates perspective views of a base of the convertible seat,

IMAGE

FIG 4 (Right): Illustrates perspective view of a slanted member of a locking element of the convertible seat,



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