

Army OT Invention Filed for US Patent

CPT Arthur Yeager, an Occupational Therapist at Tripler Army Medical Center has **grabbed** the attention of the Invention Evaluation Committee (IEC) from the United States Army Medical Research and Materiel Command (USAMRMC) by creating the **Gravity Reacting Anti-rollback Brake (GRAB)**. The IEC has filed a patent application on behalf of the Secretary of the Army. Congratulations to CPT Yeager!

The GRAB is designed for standard wheelchairs to prevent rollback on inclines. The function permits the user or caregiver to rest on an incline; and increases safety on inclines that are difficult detect. Although several devices exist that provide this function, they must be manually engaged and/or disengaged. GRAB is unique in that it operates using a constant force universal to everyone: gravity. Regardless of hand strength, dexterity, or cognitive status users do not have to manually activate or deactivate this device. The pictured working prototype slides onto existing standard brakes. The final design of which the Army plans to patent includes a wheelchair frame mount and a connecting rod to provide simultaneous bilateral operation. Ultimately, GRAB automatically avoids unwanted rollback with hands-free operation.

How it works: A simple cam is mounted in close proximity to the main wheels. On level surfaces, the device does not affect forward and rearward movement. Gravity keeps the cam in a level position so that when the wheelchair is tilted back by an incline, the cam comes in contact with the main wheel. Because the cam is graded, it gets thicker as it rotates around its axis and engages the brake more. The weight of the passenger and a cam-stop prevent the brake from slipping.



CPT Yeager with the GRAB (Gravity Reacting Anti-rollback Brake)

(A closer view can be seen on the next page)



Gravity Reacting Anti-rollback Brake