ROCKING OUT WITH WORM GEARS

When The Beatles hit American airwaves in 1963, they were an overnight sensation. They owe part of their success to small components found on their guitars' machine head: worm gear drives.

HOW A WORM DRIVE WORKS

In a worm drive, a worm with a screw-like gear meshes with a worm gear to make the gear turn.

Worm drives use one of three different types of worm gears:

Non-throated gear: Uses a straight worm without grooves machined around the gear's circumference Single-throated gear: Has concave helical teeth around the worm

Double-throated gear: Has concave teeth around the worm and worm gear



PARTS OF A GUITAR MACHINE HEAD

Worm gear drives on string instruments' machine heads adjust and hold the tension of strings:

- A worm gear links the pinion gear's capstan and tuning knob
- The guitar string enters a hole in the capstan and wraps around it
- A player turns the capstan using the tuning knob to tighten the string
- The worm gear keeps the capstan in position



SOME OF THE BEST BEATLES

The crushing bluesy heavy rock-n-roll sound from doubled and overdubbed guitar lines in "I Want You (She's So Heavy)"

The catchy chords of "Here Comes the Sun"

THE

The backward guitar solo in "I'<mark>m Only Sleeping</mark>"

GUITAR MOMENTS

The six-string solo in **"Taxman"** BEATLES The dirty, distorted sounds of

"Revolution"

The chorus-sounding pitch in **"While My Guitar** Gently Weeps"

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