Space-age engineering: How the Jetsons undermined the understanding of an entire (gear) industry

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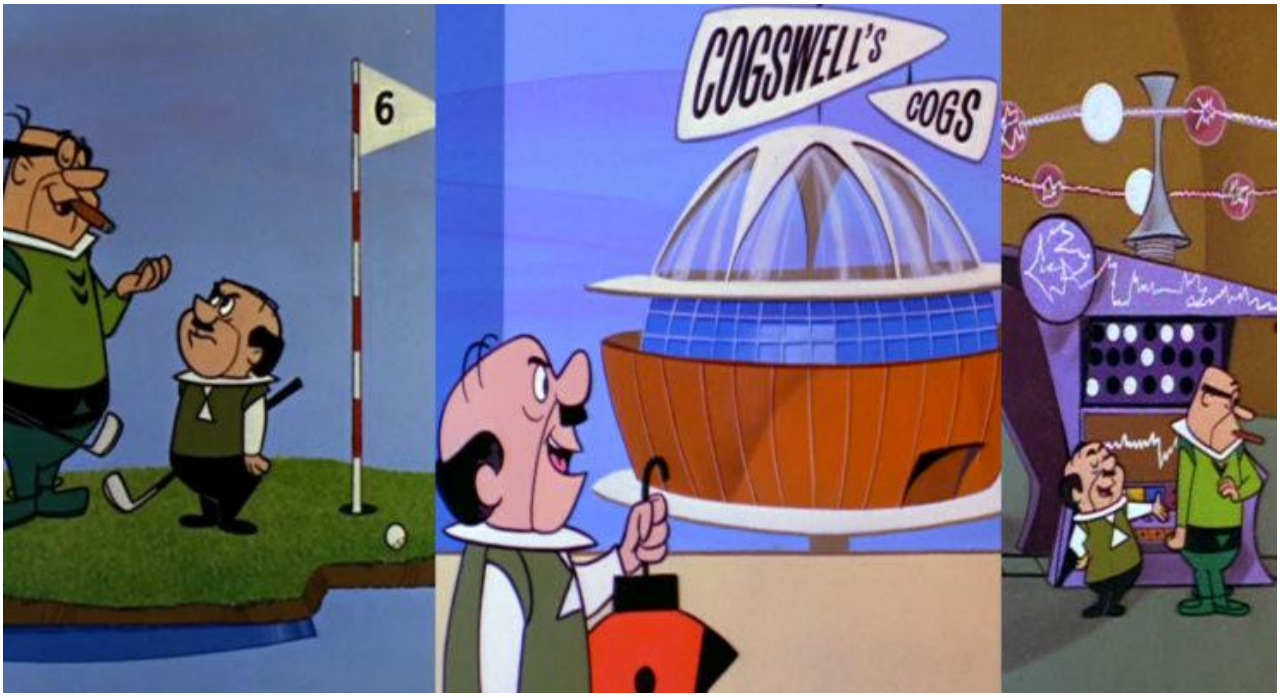
For those of us of a certain age, the thoughts of flying cars and home robots originated with watching popular 1960s cartoon The Jetsons. The Jetsons' world was that of a simple family living a typical 1960s life, but in a futuristic setting. Mr. George Jetson had a job working at a factory while his wife Jane took care of the children and their home. Jane was typically preoccupied with the latest gadget, which usually left Rosie (their robot housekeeper) doing most of the cooking and cleaning. The Jetsons' two children, Judy and Elroy, got sent to school each morning in a traveling capsule.

Mr. Jetson's employer was Mr. Cosmo Spacely, the proud owner of Spacely Sprockets. In most episodes, Mr. Spacely engages his chief rival, Spenser Cogswell, the owner of Cogswell Cogs, in a manner that backfired for both companies — and George Jetson inevitably was the fall guy. Never mentioned in the show was, what a sprocket or what a cog was. What the show did accomplish was to make the viewer understand that these two distinct widgets were interchangeable and thus made Cogswell Cogs and Spacely Sprockets competitors. But Hanna & Barbera did a great disservice in presenting this assumption.



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As defined in the Merriam Webster dictionary, a cog is a tooth on the rim of a wheel or gear, but it can also be defined as a toothed wheel as well. In contrast, a sprocket is a toothed wheel whose teeth engage the links of a chain. So a sprocket is a cog that engages with a chain. But the inverse isn't true, as there are several types of toothed wheels that aren't sprockets. One example is a timing pulley — a toothed wheel that only engages a toothed belt. Another example of a cog is a spur gear. However, a gear only meshes with another gear. Thus, a gear is a cog … but not all cogs are gears.

With the understanding that all sprockets are cogs, but all cogs are not sprockets, it's clear George worked for a company that specialized in one product type … and Mr. Cogswell's company produced many types of similar products. As we await the time when flying cars or capsules are common, engineers must know the proper application for components they chose when creating a design and what the limitations of those products are. Even the simplest of machine components can have vastly different performance specifications within different applications, and interchangeability isn't always possible.