ENERGY & POWER

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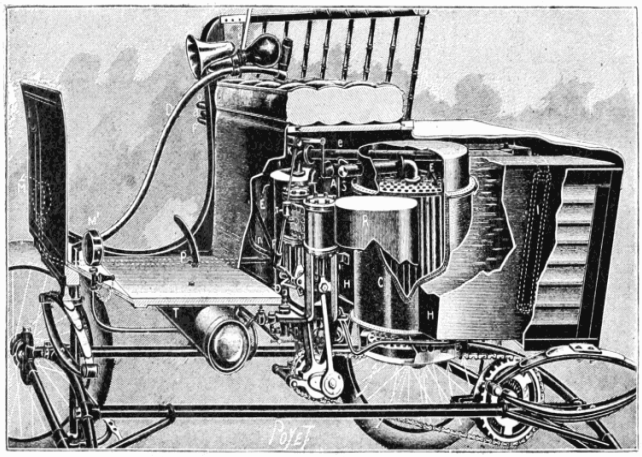
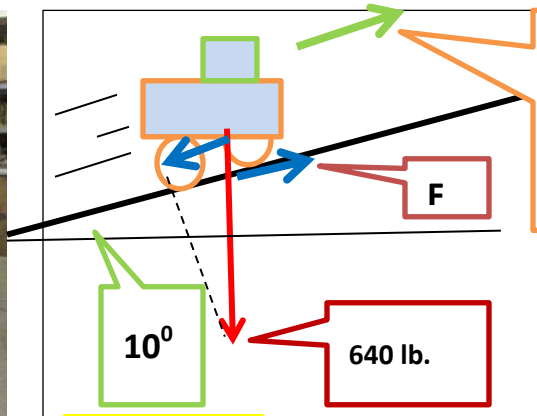
How a Passion for Steam-Powered Cars Led to Love





INTRODUCTION: **This 1899 locomobile had a 3.5 HP Steam engine under the seat(see graphic). It could climb hills at a constant speed as in this case.**

QUESTION: **At what speed could it climb this 10° grade hill? Find the speed in ft/s & mph.**

HINT: **P =work/time = Fx/t = F v , 550 ft lb/s = 1 HP**
When moving at constant speed(a=0) forces in direction of motion are of the same magnitude. Sin 10^0 = 0.17
88 ft/s = 60 mph

ANSWER: **17.32 ft/s , 11.8 mph**

Nathan Laliberte Sarah Stanley and Donald Davidson in their 1899 Locomobile. The crown jewel of the couple's collection is an 1899 Locomobile. "It might be the oldest running production vehicle in the country," Mr. Davidson explained, adding that he first spotted the Locomobile in 1957 while attending a car show in New Jersey. He lost track of the car until 1986 when he noticed it had come up for sale. "I was able to conclude it was the same car by carefully examining the picture I have of me standing next to it in 1957. The Locomobile isn't particularly fast, but offers a thrilling driving experience, Mr. Davidson says."We can only go about 10 or 15 miles per hour," he said. Steam-car technology is very similar to the systems found on steam-powered trains from the late 1800s and early 1900s. **A boiler – usually gasoline- or kerosene-fired – partially filled with water heats up until steam pressure builds. The steam is then piped to a valve or throttle and then to a reciprocating piston engine. Unlike modern internal combustion engines, steam engines offer maximum torque at low speeds, making the need for a transmission or clutch unnecessary.** ***"Essentially, it works like a full-blown locomotive, only much, much smaller and lighter,"*** said Mr. Davidson. ***"By regulating the throttle, the amount of steam going to the engine is varied, and thus the speed of the car. Simply open up the steam to make the car go, and turn it off to make it stop. It's that simple."***