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# Electronic Assisted Bicycles

# Background

(No Model.)

H. W. LIBBEY.  
ELECTRIC BICYCLE.

No. 596,272.

Patented Dec. 28, 1897.

Fig. 1.

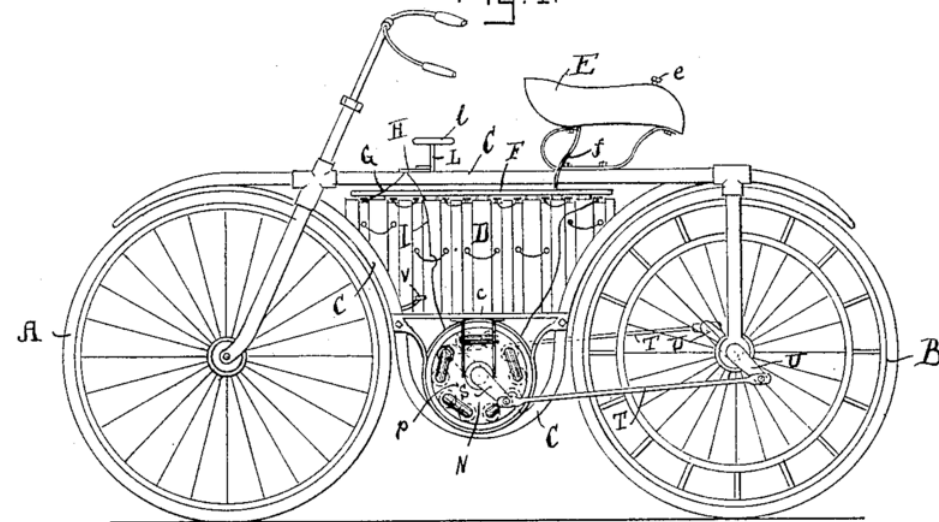
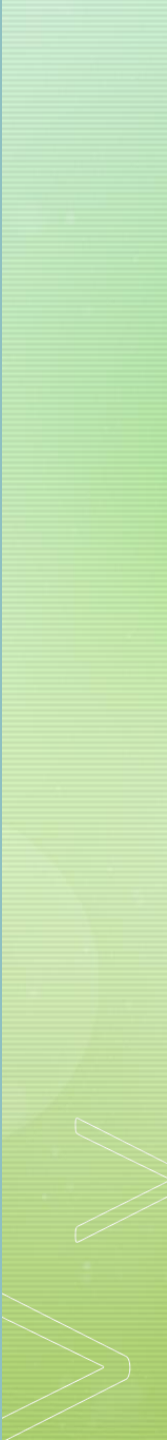


Fig. 1.



# Evolution

- Early attempts to add motors to bicycles used steam, petroleum products, and electricity.
  - Capacitors required a vacuum and were unreliable.
  - Required rigid, heavy frames.
  - Evolved in to motorbikes and mopeds.
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# Moped



- Generally classified as mopeds, along with gas-powered scooters under 50cc
- Mix between bicycle and motorcycle laws
- Generally allowed on side streets, but not on bike paths

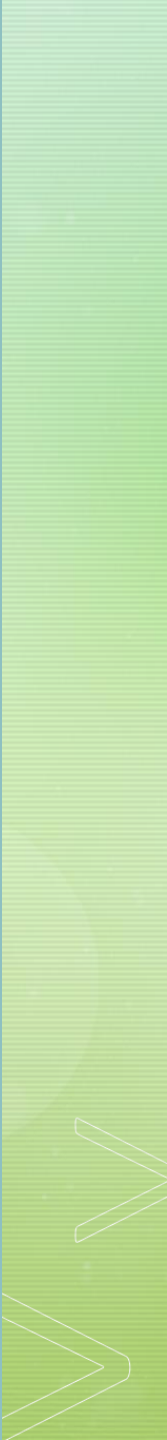


# Ebikes today

- Evolved in to pedal-assist and throttle-based.
  - Wide range of speed, range, and size.
  - Cost of batteries has dramatically reduced, making ebikes more affordable
  - Variety of applications:
    - Commuting, road cycling, mountain bikes, and cargo haulers
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# Benefits of ebikes


- Commuting via bicycle extended to those who previously couldn't for various reasons
    - Those who were physically incapable, including the elderly
    - Commuting distance too far to not be exhausted
    - Work requires specialized equipment that is burdensome on traditional bicycles
  - First and last mile
    - Extends the capabilities of traditional, static public transportation
  - Door-to-door transportation
  - Reduced greenhouse gas emissions
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▶ Pedal-assist vs.  
Throttle





## Need to classify

- HB 17-1151: Defined Ebikes in to 3 classifications, based on pedal assist and top speed.
  - Allowed local governments to allow or prohibit uses of Ebikes within jurisdiction.
  - Requires class 3 ebikes to comply with safety regulations, including helmets for minors
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# Classifications

- **Class 1:** Electrical assistance only active when the operator is pedaling and ceases above 20mph.
- **Class 2:** Electrical assistance active regardless of pedaling and ceases above 20mph.
- **Class 3:** Electrical assistance only active when operator is pedaling and ceases above 28mph.
- All other classes under 4,476 watts fall under 'low-power moped' and are subject to State rules.
  - No riding on highways or sidewalks
  - Must wear helmet



# New language

- Changes Denver's definitions of electrical-assisted bicycles to align with state and industry-standard definitions
- Allows class 1 and 2 ebikes where traditional bikes are allowed
- Allows class 1 and 2 ebikes on designated bike routes
- Does not address ebikes within non-designated bike paths within parks
  - Parks and Recreation currently undertaking rule-making to address within parks.



Questions?

