Danny Hillis

Vice President, Research and Development
The Walt Disney Company

The World's Slowest Computer

Goal

A Clock that Keeps Time for the Next 10,000 Years

Design Principles for the Clock

- Longevity
- Maintainability
- Transparency
- Evolvability
- Scalability

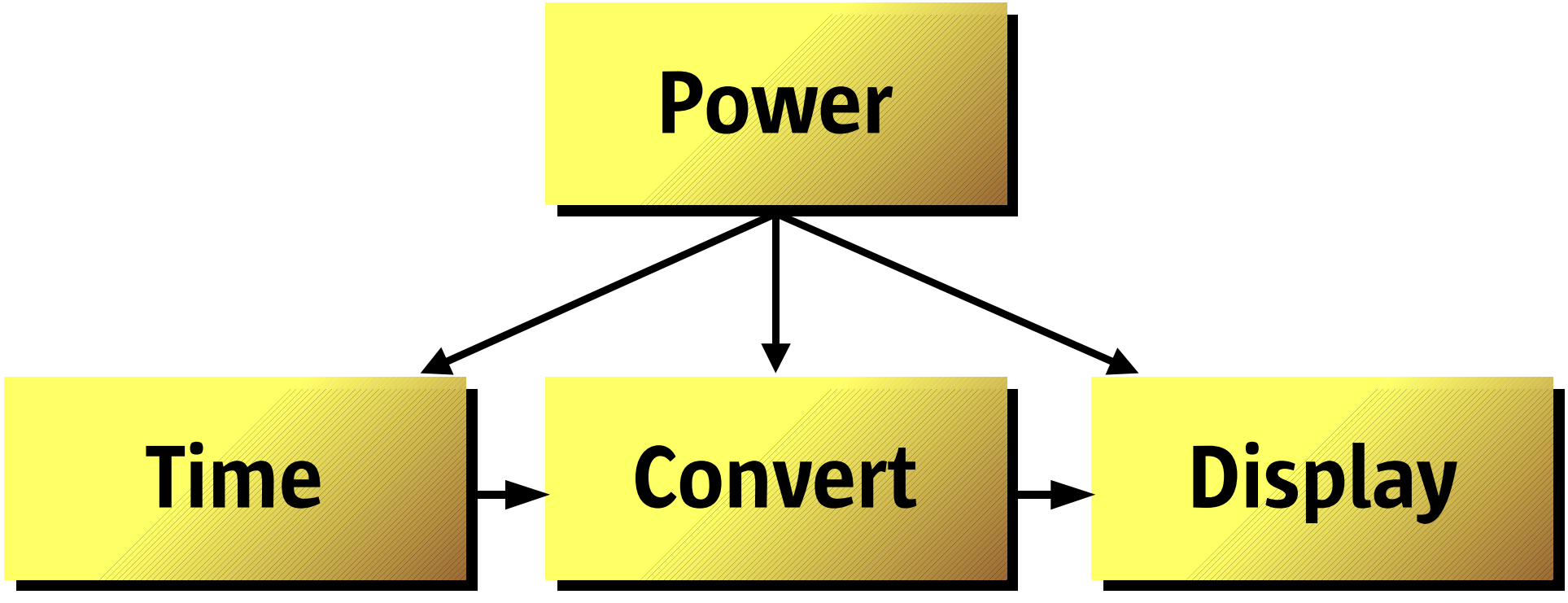
First Working Prototype

- Working by January 2000
- Small Version (6 ft.)

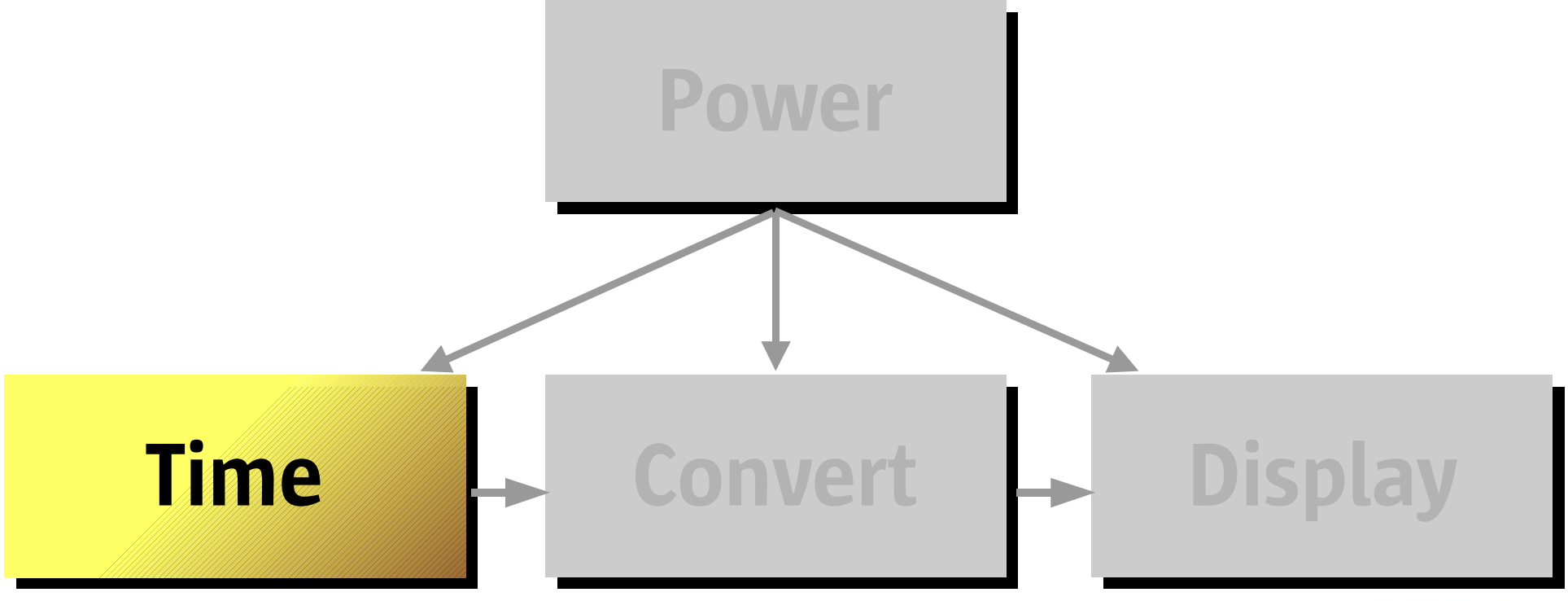
Other Members of the Design Team:

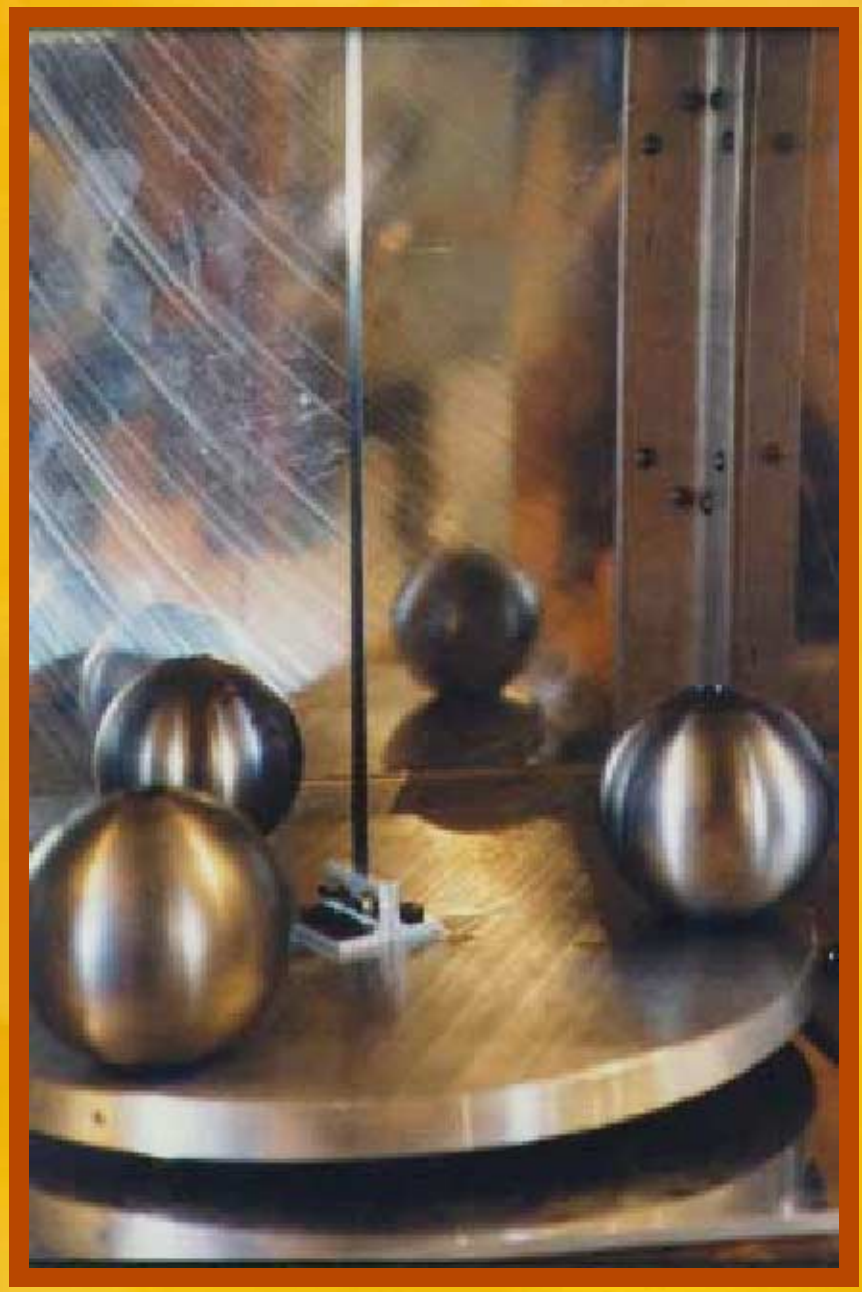
- Alexander Rose
- David Munro
- Chris Rand
- Liz Woods
- Kiersten Muenchinger
- Brian Eno

Elements of a Clock

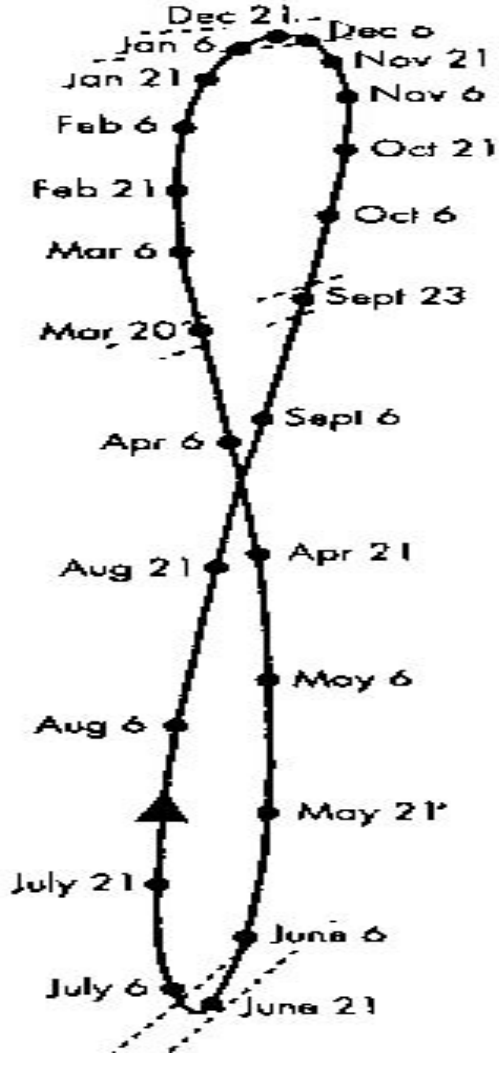


Elements of a Clock

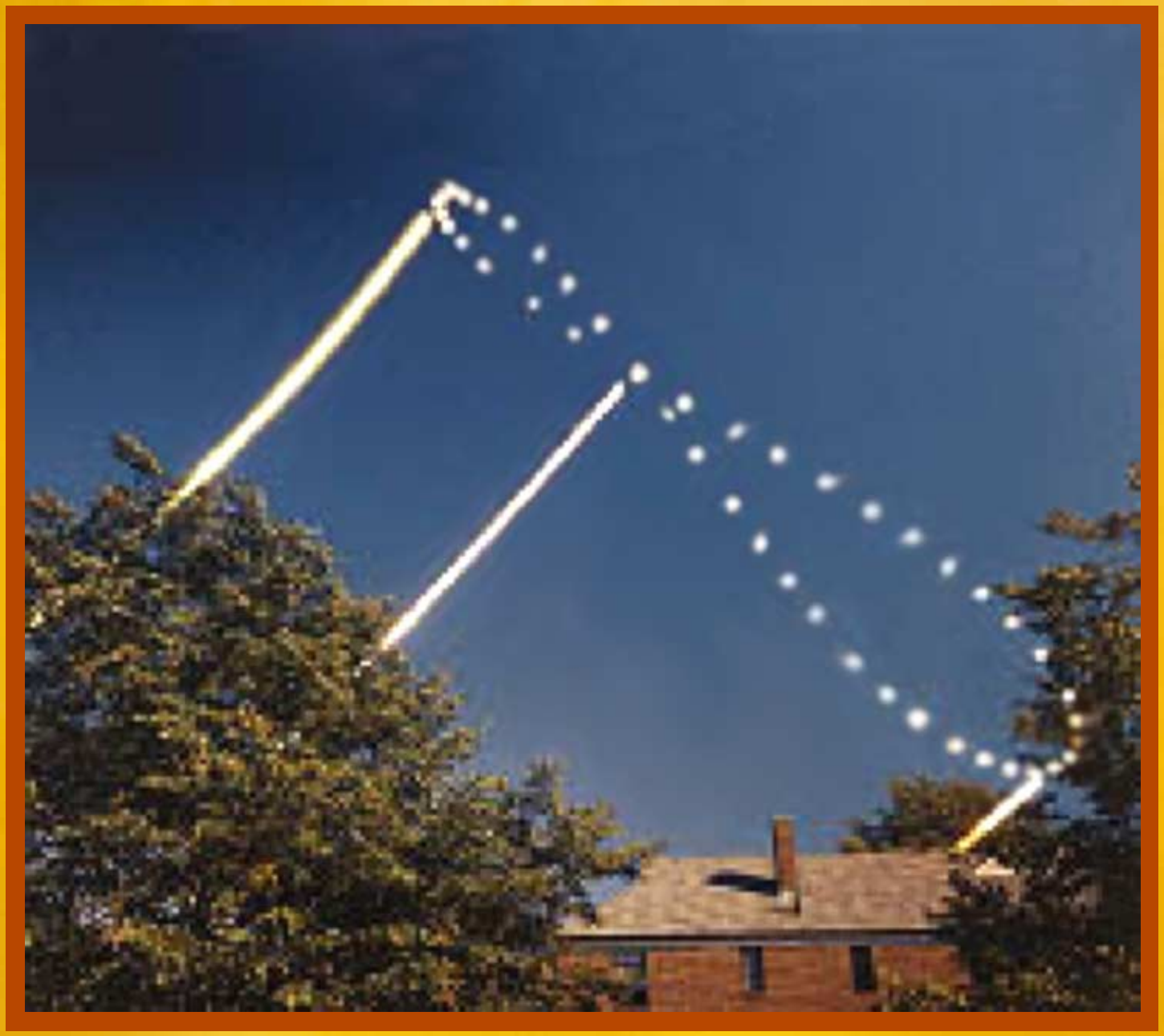




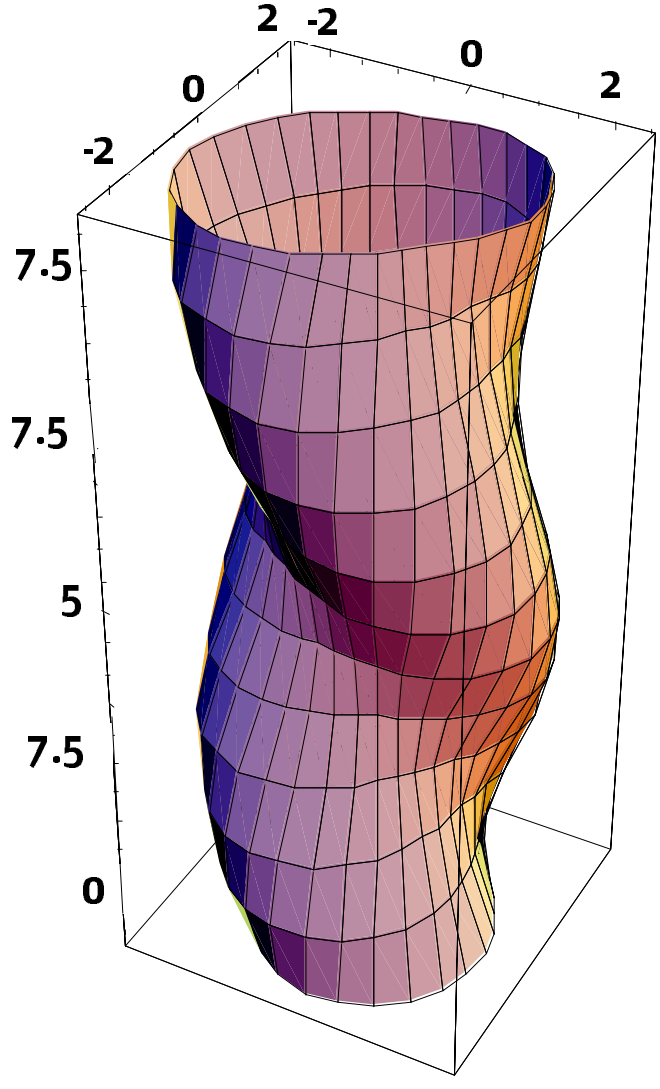
The Analemma



JavaOne

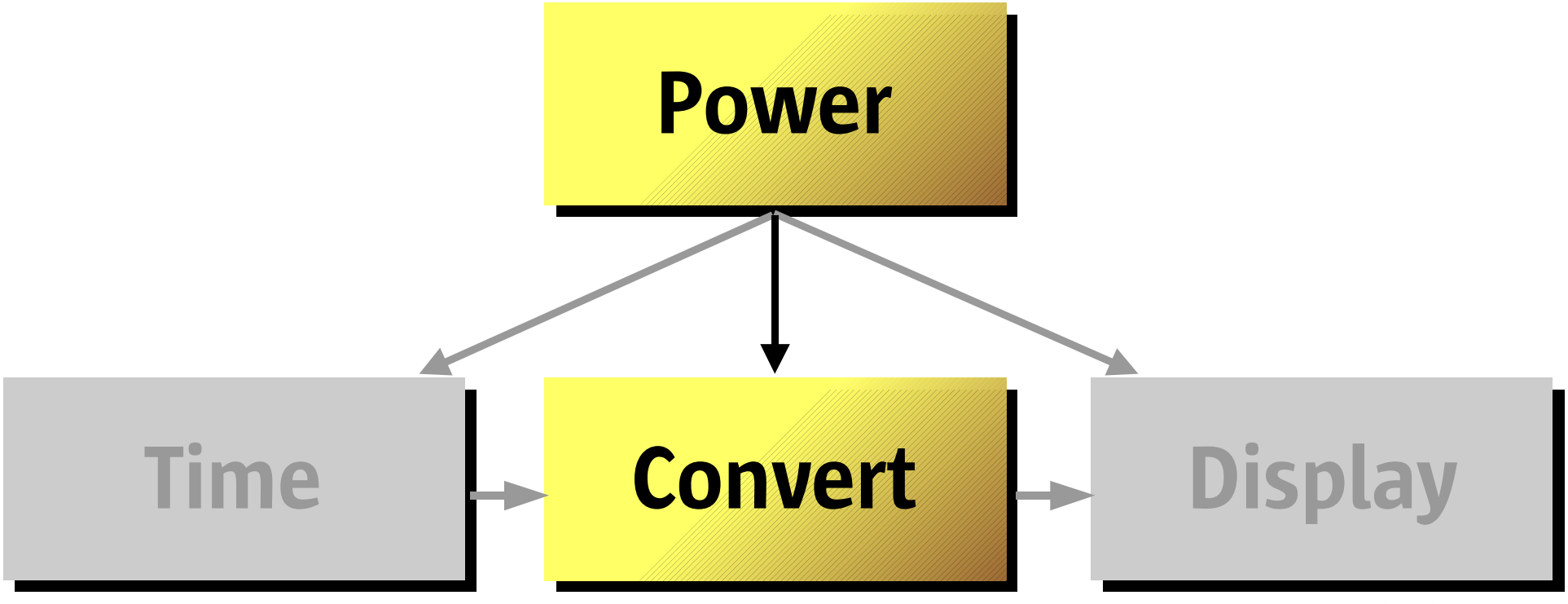


Equation of Time Cam



JavaOne

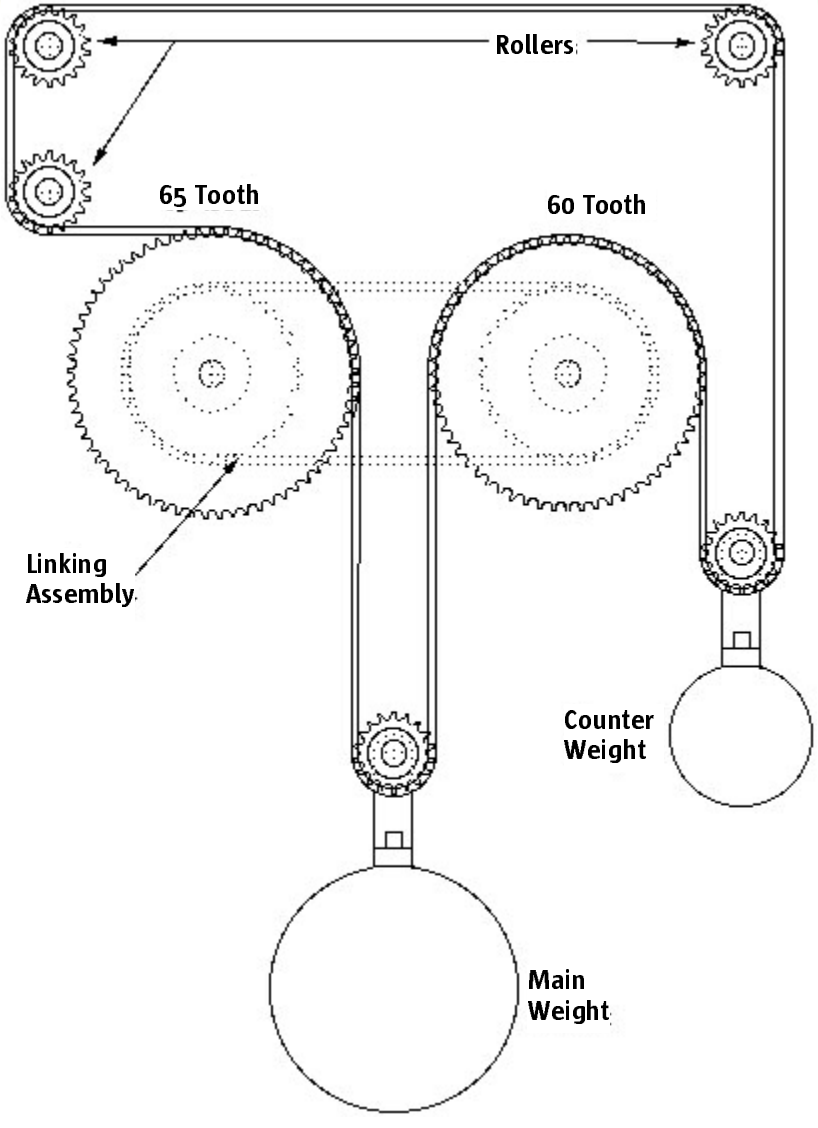
Elements of a Clock



Options for Powering the Clock

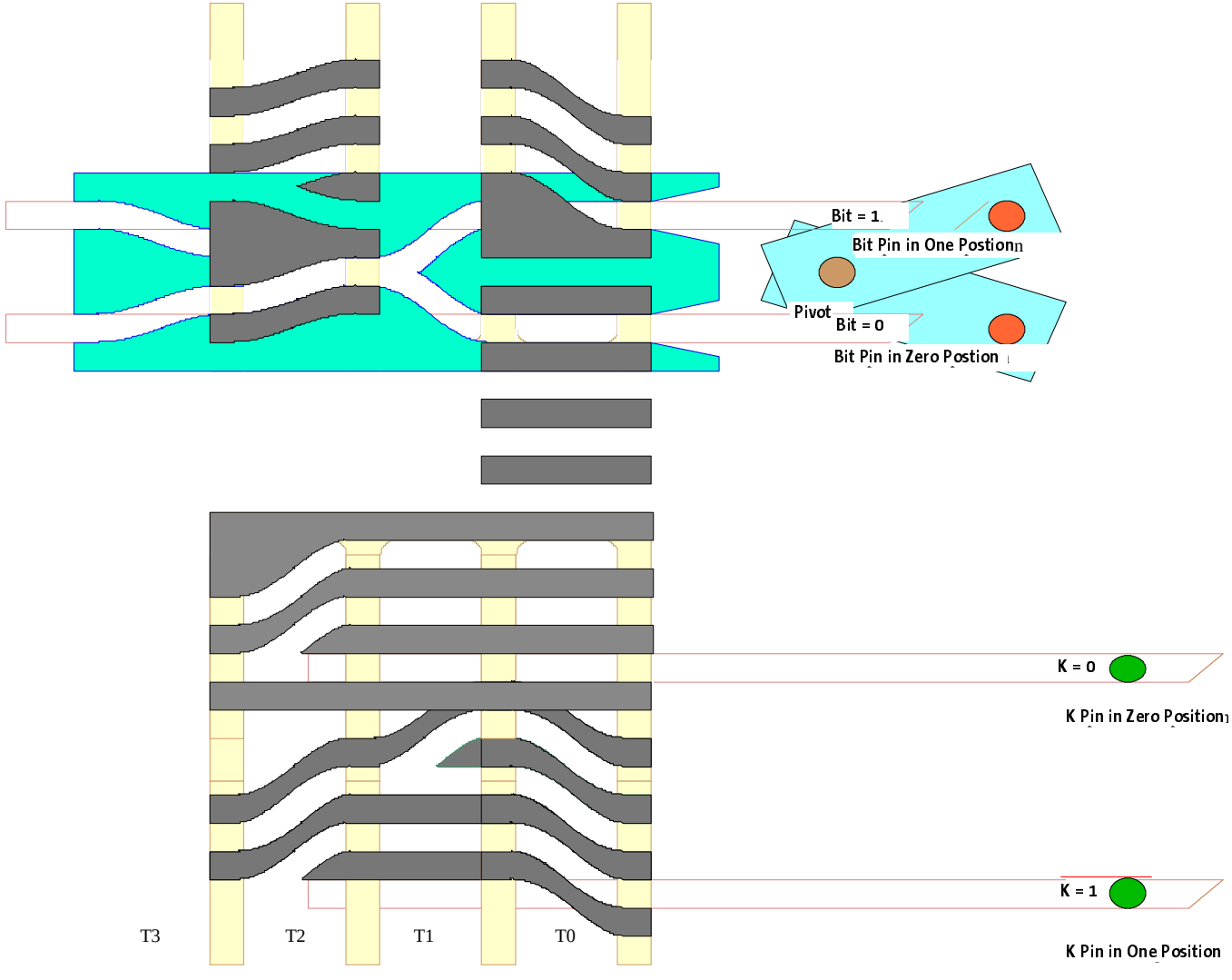
- Atomic — Poor Transparency
- Chemical — Poor Scalability
- Solar Electric — Poor Maintainability
- Prestored Potential Energy — Poor Scalability
- Water Flow — Exposure to Water
- Wind — Exposure to Weather
- Geothermal — Poor Scalability
- Tidal Gravitational Changes — Poor Scalability
- Temperature Change
- Pressure Change — Need for Bellows or Seal
- Seismic and Plate Tectonic — Poor Scalability
- Human Winding — Fosters Responsibility

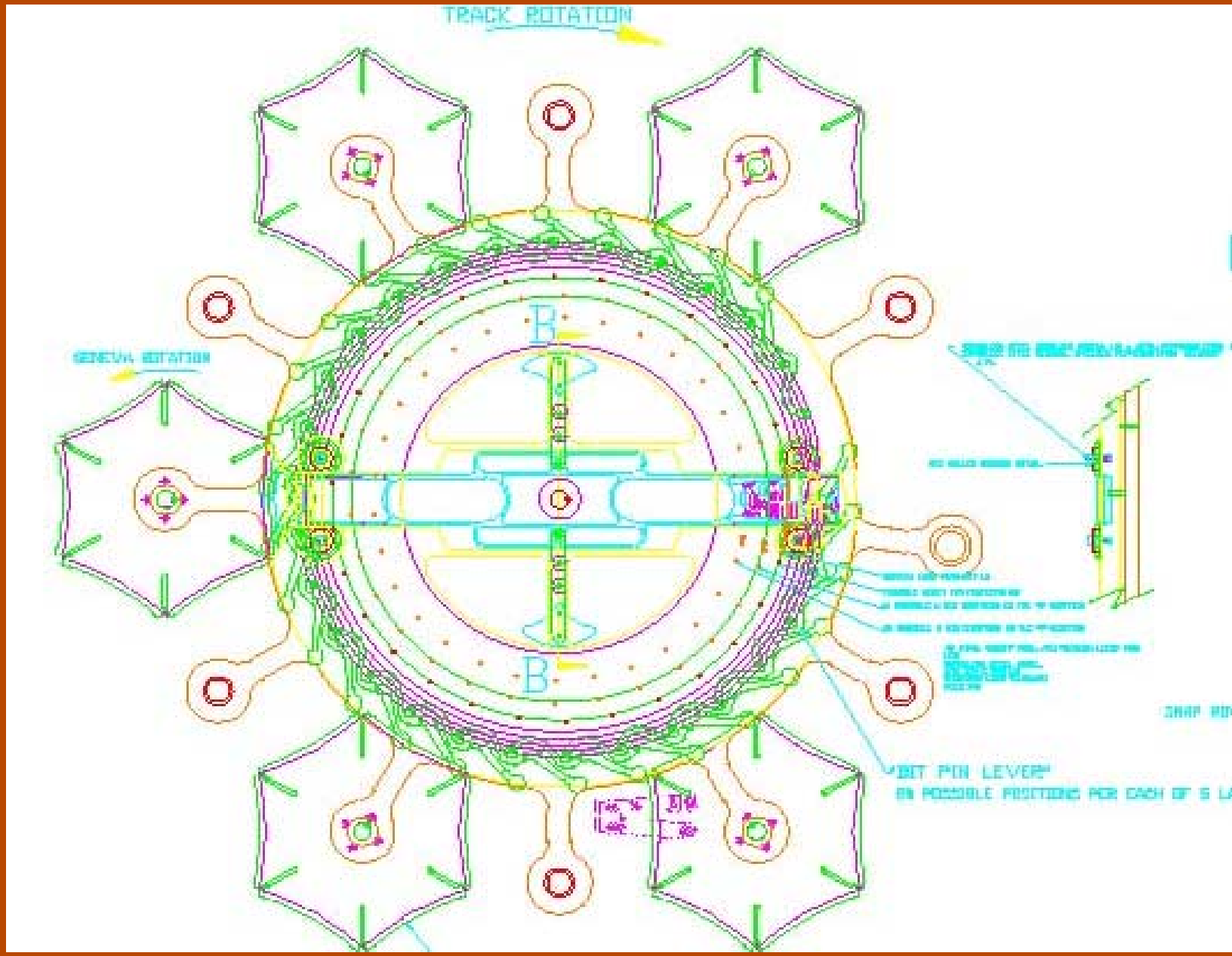
Version 1 Drive

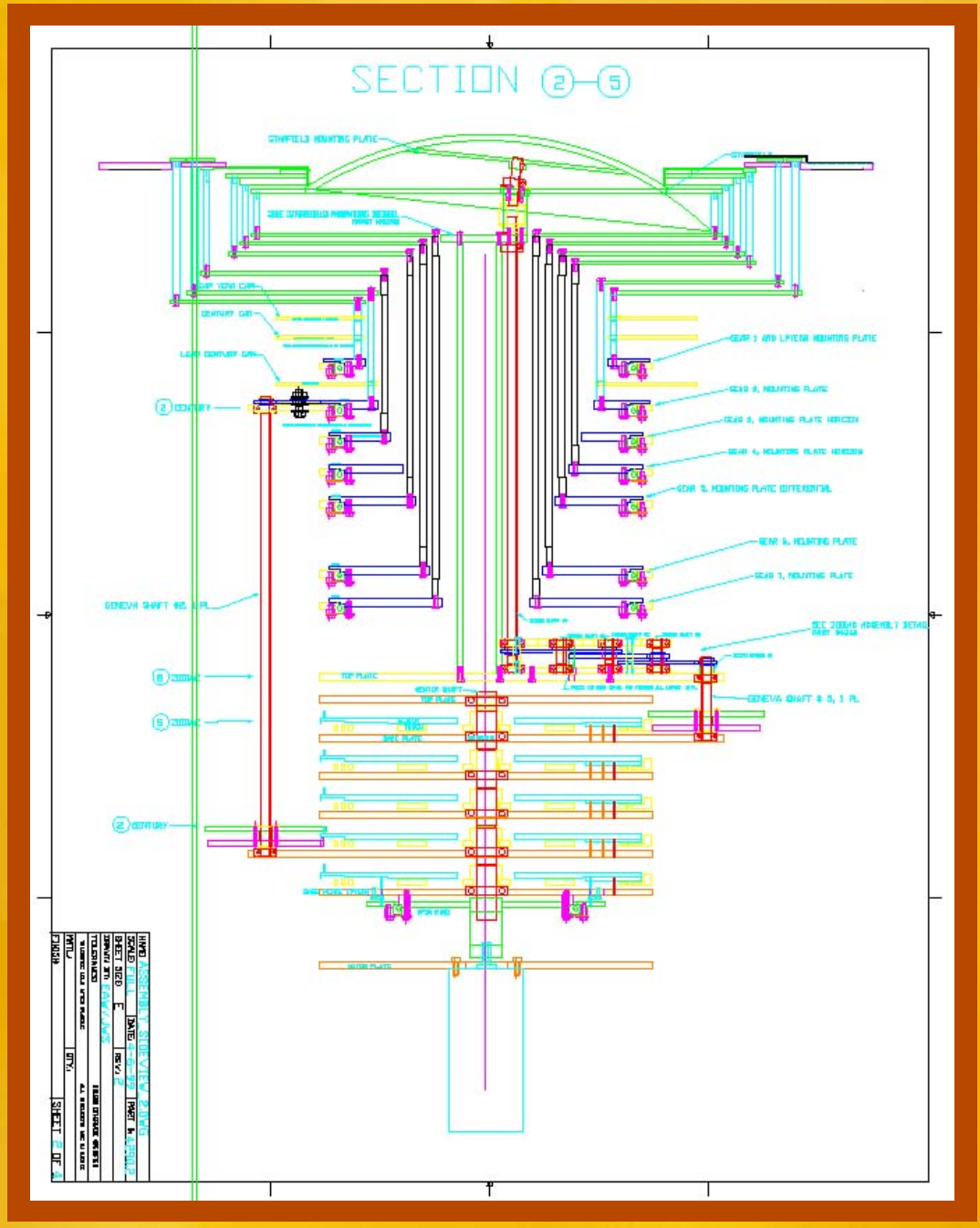


JavaOne

Bit Serial Adder




TRACK ROTATION
B
B


SECTION ②–⑤
CENTURY GEAR
GEAR 1 AND LAYSHAFT MOUNTING PLATE
GEAR 2, MOUNTING PLATE
GEAR 3, MOUNTING PLATE HORIZON
GEAR 4, MOUNTING PLATE HORIZON
GEAR 5, MOUNTING PLATE DIFFERENTIAL
GEAR 6, MOUNTING PLATE
GEAR 7, MOUNTING PLATE
GENEVA SHAFT #2, 1 PL
GENEVA SHAFT # 3, 1 PL
TOP PLATE
SIDE PLATE
MOTOR PLATE
② CENTURY
⑤ CENTURY
SHEET 2 OF 4

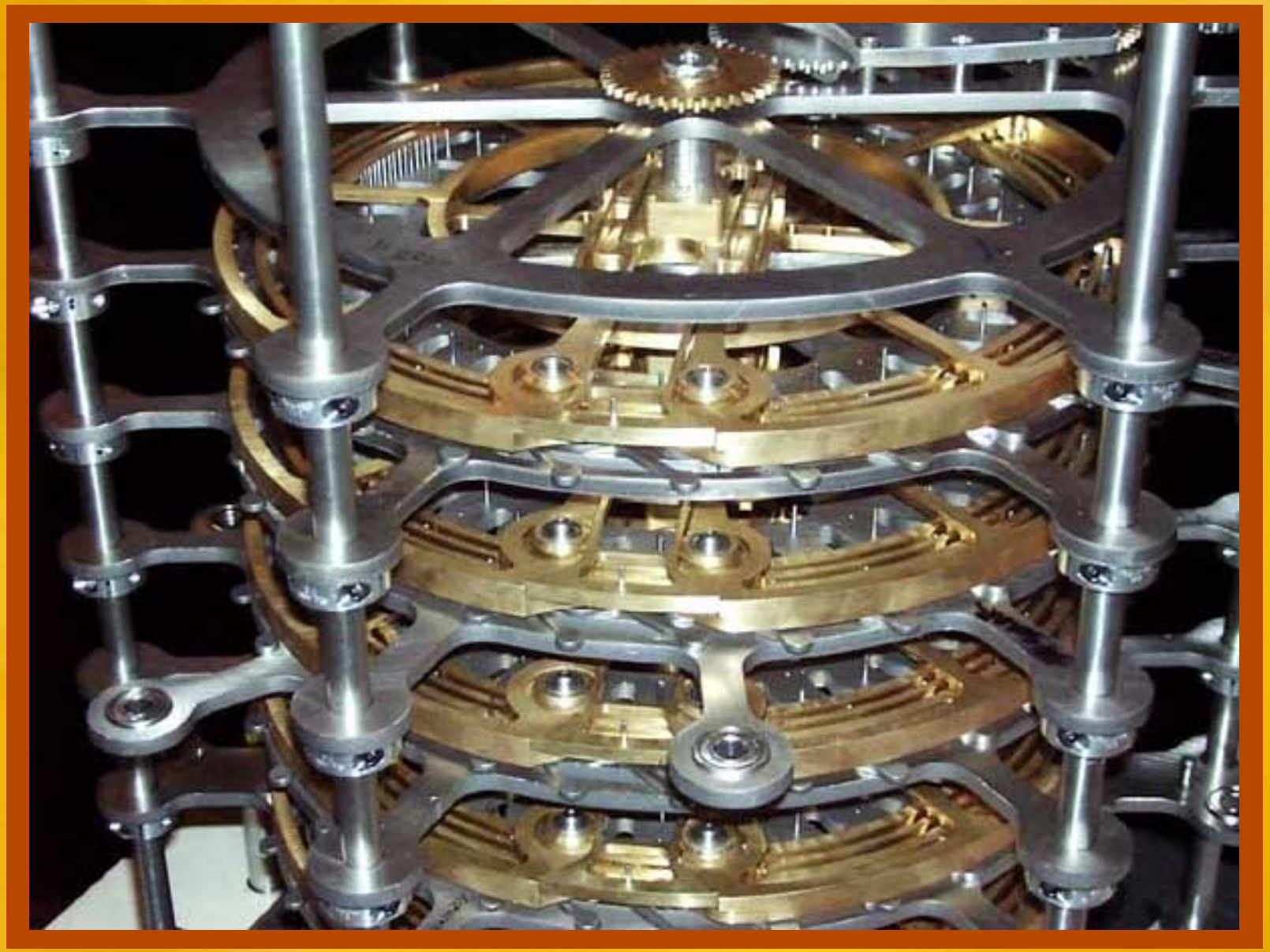
Adder / Pendulum Prototype Assembly

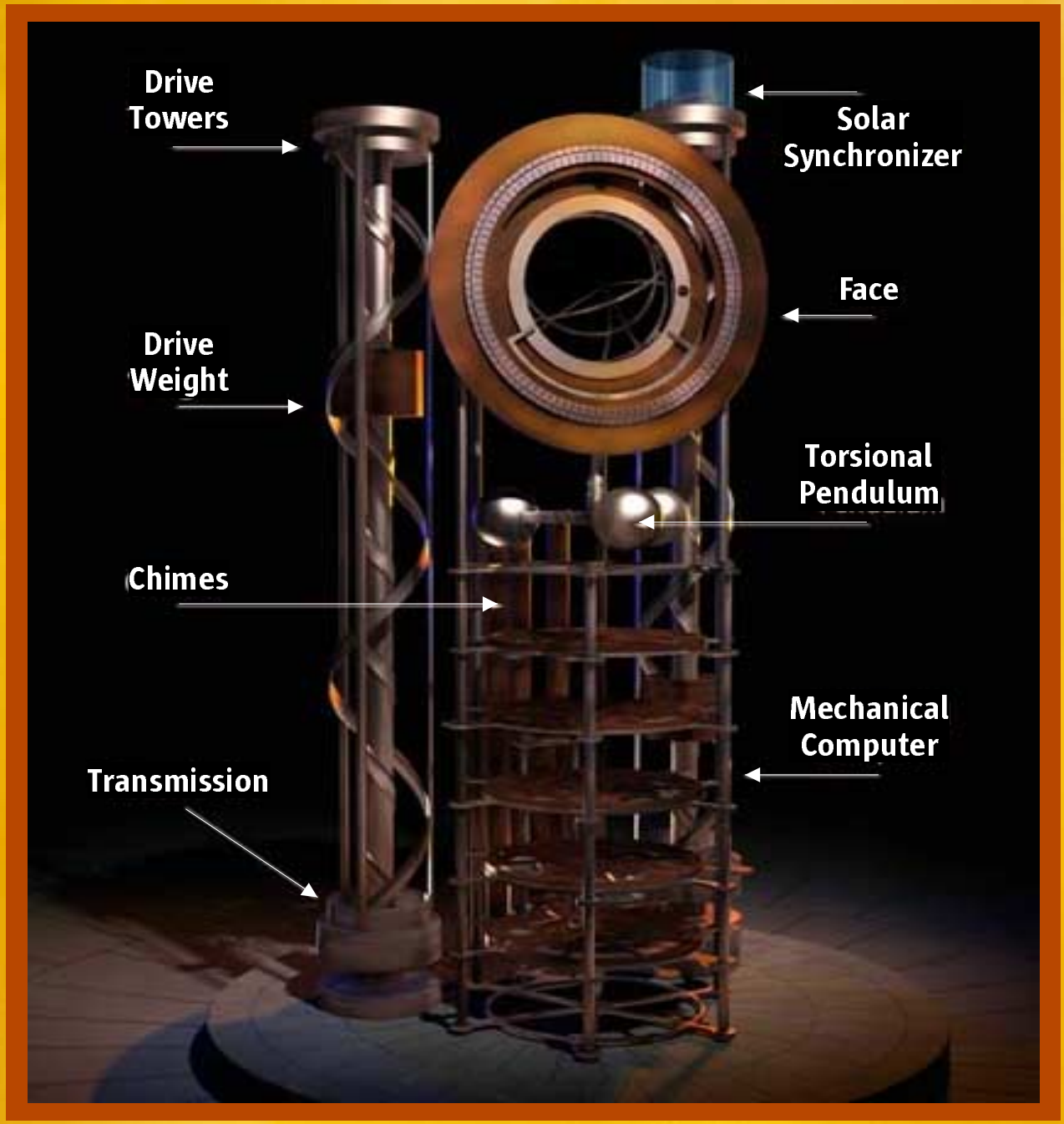
Intercallator Differntial Detail

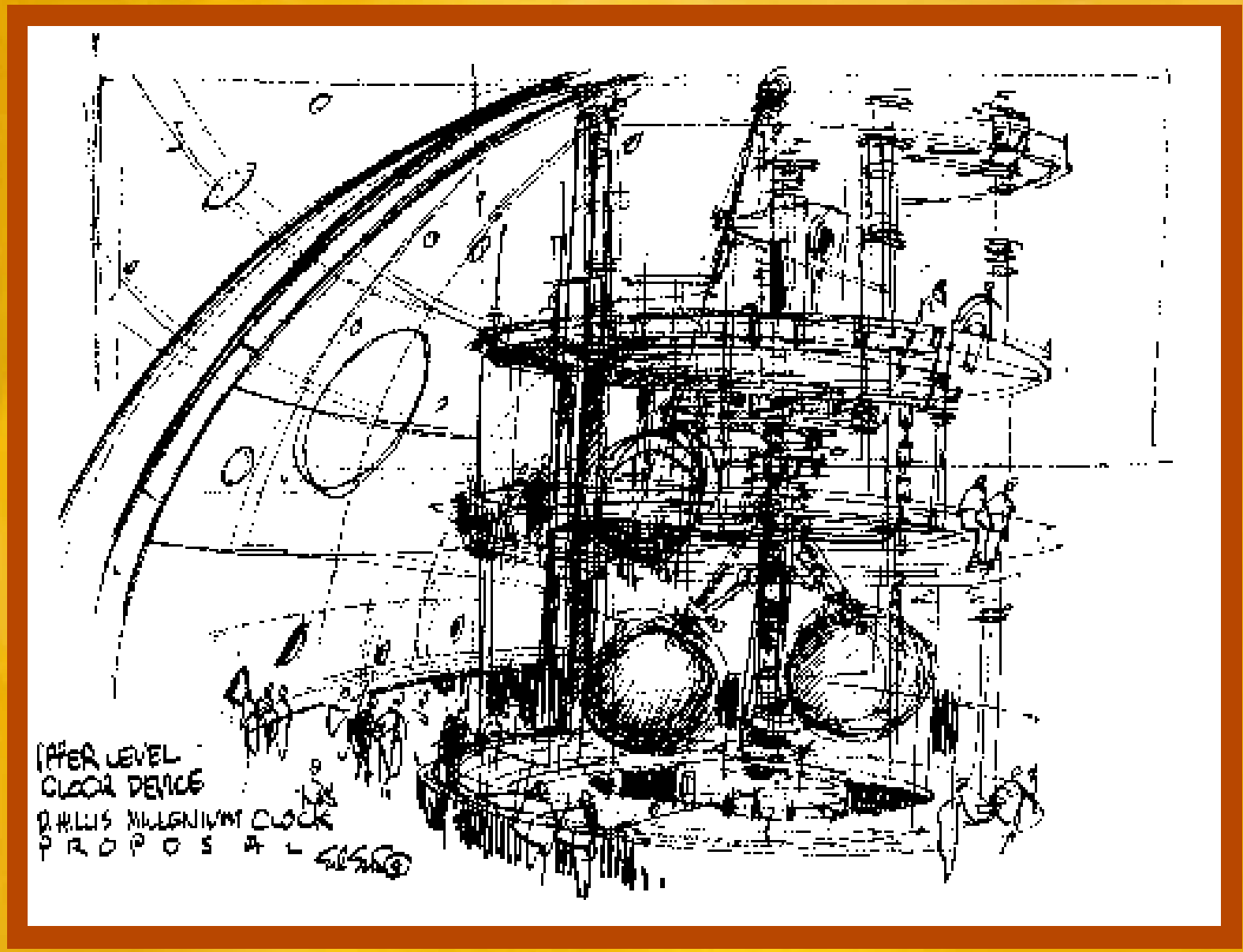
Intercallator Cam Detail

Intercallator Interior

Intercallator and Torsional Pendulum




Drive Towers
Solar Synchronizer
Face
Drive Weight
Torsional Pendulum
Chimes
Mechanical Computer
Transmission


UPPER LEVEL
CLOCK DEVICE
D.H.ILLIS MILLENNIUM CLOCK
PROPOSAL

More Information

- www.longnow.org
- The Clock of the Long Now
  by Stewart Brand

Design Principles for the Clock

- Longevity
- Maintainability
- Transparency
- Evolvability
- Scalability

Design Principles for ~~the Clock~~ Java

- Longevity
- Maintainability
- Transparency
- Evolvability
- Scalability

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