Industrial Revolution: Progress Continues

W. 14 – Explain how scientific and technological innovations (e.g., the steam engine, new textile technology, steel processing, medical advances, electricity, and new methods of transportation) led to massive social, economic, cultural, and demographic changes.

Steel

- Alloy of iron and carbon
  - Stainless steel = addition of chromium to prevent rusting.
- Been around for centuries
- Stronger than iron
- Cheap to make and highly durable
- Allowed for skyscrapers to be a thing.
- Allowed for longer and bigger bridges to be constructed.

Bessemer Process

- Blew air into the bottom of the converter which allowed for faster burning of carbon out of iron.
- Could produce either iron or steel, depending on amount of carbon left in the product.

Bessemer Process

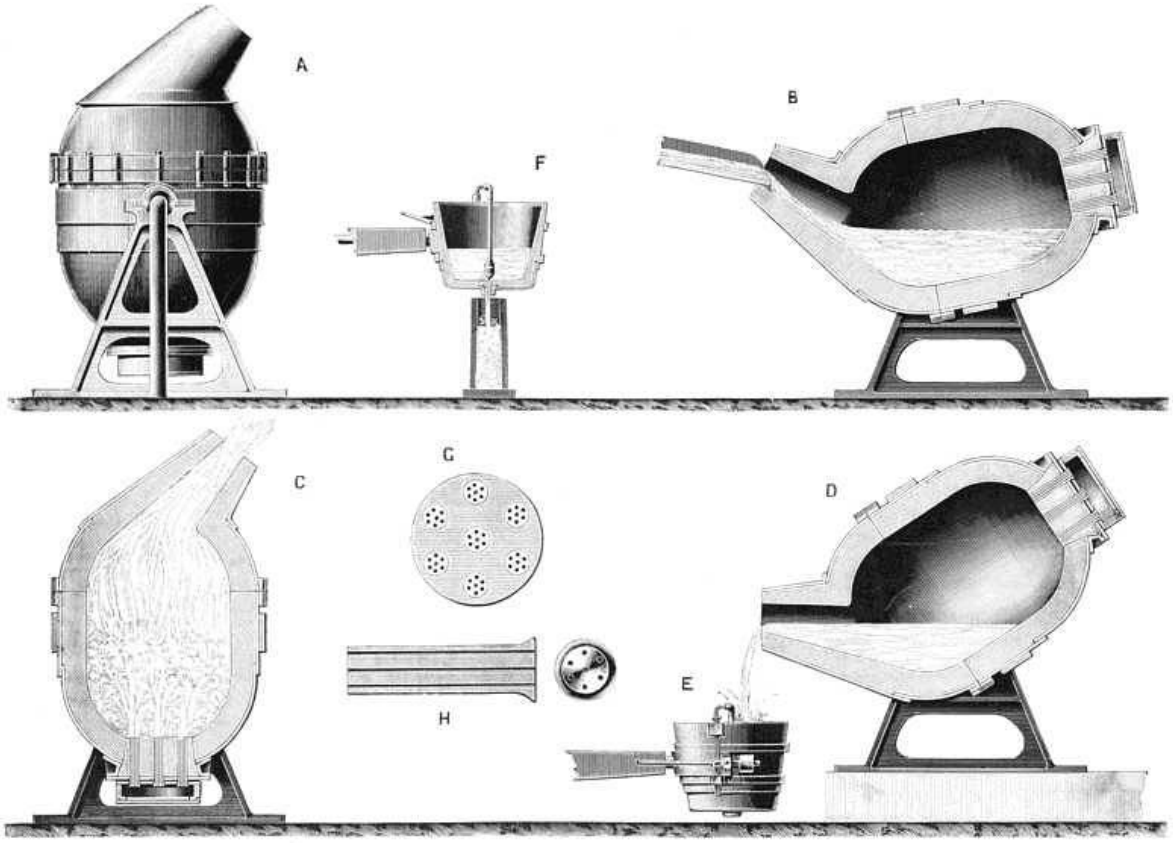
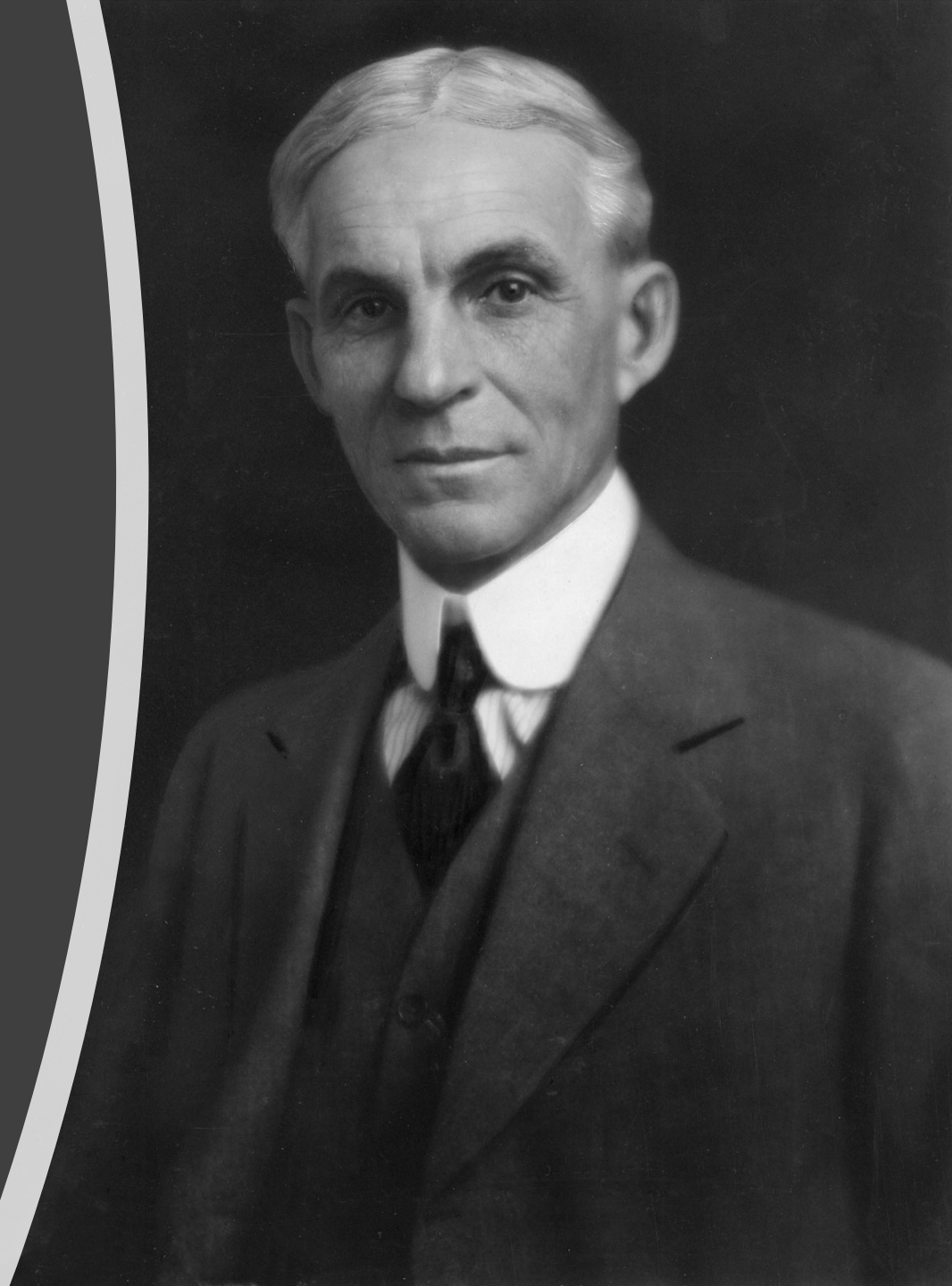


Fig. 43. The First Form of Bessemer Moveable Converter and Ladle

Rise of Skyscrapers and the Modern City

Mass Production

- Assembly Line
  - Pioneered by Henry Ford (Ford Motor Company)
- Standardization and Specialization
  - Could build a car in one hour.
  - Modular parts
- Made it harder for smaller companies to get into the car building business
- Spurred the creation of roads, and made national parks more popular.



Petroleum and Chemicals

Petroleum and Chemicals

- Petroleum becomes the main source of fuel for cars.
- Understanding of Chemistry
  - Allowed for uses all around different industries
  - How materials are made.

Petroleum

- First refined in 1848.
- Lubricants
- Kerosene
  - Used for lighting
  - Cheaper than other oils
- Gasoline
  - Unwanted byproduct until mass production of cars.

Chemicals

- Dyes
- Fertilizers
- Plastics

Electricity

- Was a novelty
- Relationship between magnetism and electricity paved way for motors – generators, etc.
- By late 1800s electricity began replacing gas for lighting in homes.