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Invention, 1850-1900 (Overview)

Though a nightmare for the nation, the Civil War had inspired manufacturing and scientific innovation. After the war's end in 1865, America's great thinkers built on those innovations and also applied themselves with new fervor. They produced a flood of inventions that changed American life profoundly and permanently. Those changes—both positive and negative—not only affected individual Americans in the workplace, at home, on the farm, and in cities but also changed the way industry and agriculture operated.

Industry

Between 1860 and 1890, 440,000 patents were issued for new ideas or products, which led to the creation of new industries to develop, manufacture, and use those products. In addition, the explosion of invention brought increased productivity to almost every American industry. For example, iron and steel manufacturing, the core of America's industrial economy at the time, exploded in the late 19th century. Production increased by eight times—largely as a result of the Bessemer steel process, a technology that facilitated rapid steel manufacturing. Patented in the late 1850s, the Bessemer process and its successor, the open-hearth method, had by the end of the 19th century revolutionized steel manufacturing. Steel began to replace iron in railroads—an enormous market, as railroad miles in the United States more than doubled during this period—and throughout U.S. industries.

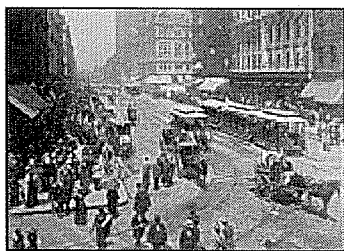


Working Life

Invention also changed the way businesses functioned and how their workers performed their jobs. Mass production became more and more common, both in manufacturing and on farms. The annual value of manufactured goods, along with the number of Americans working in industry, more than doubled in the last two decades of the 19th century. Farms became more scientific and mechanized with inventions like the combine and scientific innovations like drought-resistant wheat. In addition, the harnessing of electricity dramatically affected the way businesses functioned. In 1881, Thomas Edison constructed the first electrical power plant in New York City, which led to the use of electricity in many factories and scores of other time-saving business devices. Finally, the telegraph (1844) and telephone (1876) dramatically affected the daily working experience, as they allowed businesses to communicate nearly instantaneously.

Domestic Life

Invention and industrialization catapulted Americans' lives into the future. Edison's invention of the incandescent lamp brought lights into people's homes. In time, power plants allowed the invention of electric trolley cars that enabled people to travel about cities with ease and phonographs that played recorded music. Alexander Graham



Bell's telephone meant that people could speak to friends and relatives far away, share political ideas, or get help in emergencies. With the expansion of newspaper printing resulting from such machines as the linotype and rotary press, individuals had greater access to information about their world. At the same time however, invention and industrialization often meant harsh labor conditions, crowded and polluted cities, and unhealthy citizens—problems that 20th-century Americans would have to face.

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Invention, 1850-1900 (Discussion Questions)

1. Which of the inventions developed during the late 19th century do you think made the most significant impact on American life? Explain.
2. Why might people of the late 19th century have feared the many new inventions around them?
3. Thomas Edison believed that hard work made more difference than a small kernel of genius in creating new inventions. Do you agree or disagree with this statement? Explain.

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Browse Inventions by decade patented: 1880 - 1899

Gramophone / Microphone

Emile Berliner

Calculator

William Seward Burroughs

Photography

George Eastman

Aluminum

Charles Martin Hall

Punch Card Tabulator

Herman Hollerith

Linotype

Ottmar Mergenthaler

Gas-Motor Engine

Nicolaus August Otto

Alternating Current

William Stanley, Jr.

Alternating Current

Nikola Tesla

Dishwasher

Josephine Cochran

Filament for electric light bulb

Lewis Latimer

Shoe-lasting machine

Jan Matzeliger

Waterwheel

Lester Pelton

Electric street car

Frank Sprague

Sound recording instruments

Charles Tainter

Electric-Arc Lamp

Elihu Thomson

Dissolvable Pills

William Erastus Upjohn

Carborundum

Edward Goodrich Acheson

Internal-Combustion Engine

Rudolf Diesel

Bromine Extraction

Herbert Henry Dow

Radio

Guglielmo Marconi

Alternating Current

Charles Proteus Steinmetz

Tapered Roller Bearings

Henry Timken

Jenny coupler for railroad cars

Andrew Beard

Traveling grate furnace

Eckley Coxe

Breakfast cereal

John Kellogg

Maxim gun; smokeless gunpowder

Hiram Maxim

Bottle cap

William Painter

Automatic telephone dialing system

Almon Strowger

Automobile, bicycle, and diesel applications

Alexander Winton

Telegraphic Instruments

Elisha Gray

Submarine

John Phillip Holland

Electric Telegraphy

Oliver Joseph Lodge

Cinematographe

Auguste-Marie Lumière

Cinematographe

Louis Lumière

Explosion and Combustion Motor

Wilhelm Maybach

Escalator

Jesse Wilford Reno

Escalator

Charles D. Seeberger

Valve for Steam Engines

Frederick Ellsworth Sickels

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Fountain pen

Lewis Waterman

Portable voltmeter

Edward Weston

Railway Telegraphy

Granville Woods

Flexible Flyer Sled

Samuel Leeds Allen

Improved Method for Opening and Closing Elevators

Alexander Miles

Glass Tile, Mosaic

Louis Comfort Tiffany

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