

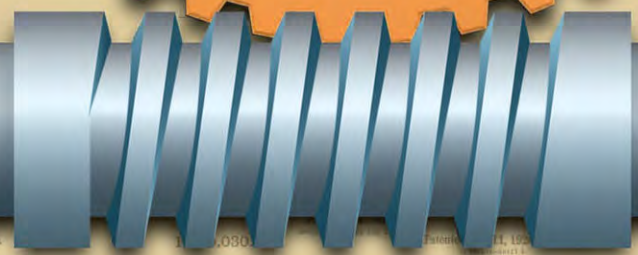
CLEVELAND GEAR



MOVING THE WORLD FOR 100 YEARS

1912

2012



Worm Gear Pioneering

A *Word About Worm Gear Pioneering* was published in 1926, 14 years after the founding of Cleveland Worm and Gear, to celebrate the pioneering spirit of industrial innovation. The booklet traced worm gear technology from Archimedes' invention of the common screw and his understanding of the "laws of the lever" to the ornate and intricate design of a worm gear used on a 15th century chariot.

The illustration in question was etched by famed artist Albrecht Dürer who was commissioned by the Holy Roman Emperor Maximilian I to design a chariot worthy of use in a triumphal procession. Dürer etched an ornate and intricate chariot design to be carved out of wood. This etching featured the first rendering of a worm gear-driven vehicle on record. Over the next 400 years, scientists continued to improve on worm gear design.

Records on worm gear design are scarce until the 19th century where they were used extensively on automobiles and other vehicles in England. In 1911, the worm gear was brought to the United States and was hobbled of steel and bronze.

Cleveland Worm and Gear was the first company in the U.S. to manufacture worm gearing for mass production. Today, the company continues to manufacture worm gears, some of which reflect 21st century innovations and some that utilize the tried and true worm gear technologies from the early 1900s – and they are built on the very same type of machines as their ancestors!



What Was Going On

Titanic Sinks

World War One Begins In Europe

US Declares War On Germany

Time Zones Established

World War One Ends

What Was New

Life Savers Candies

Fortune Cookies

Tow Truck

What We Were Doing

1912

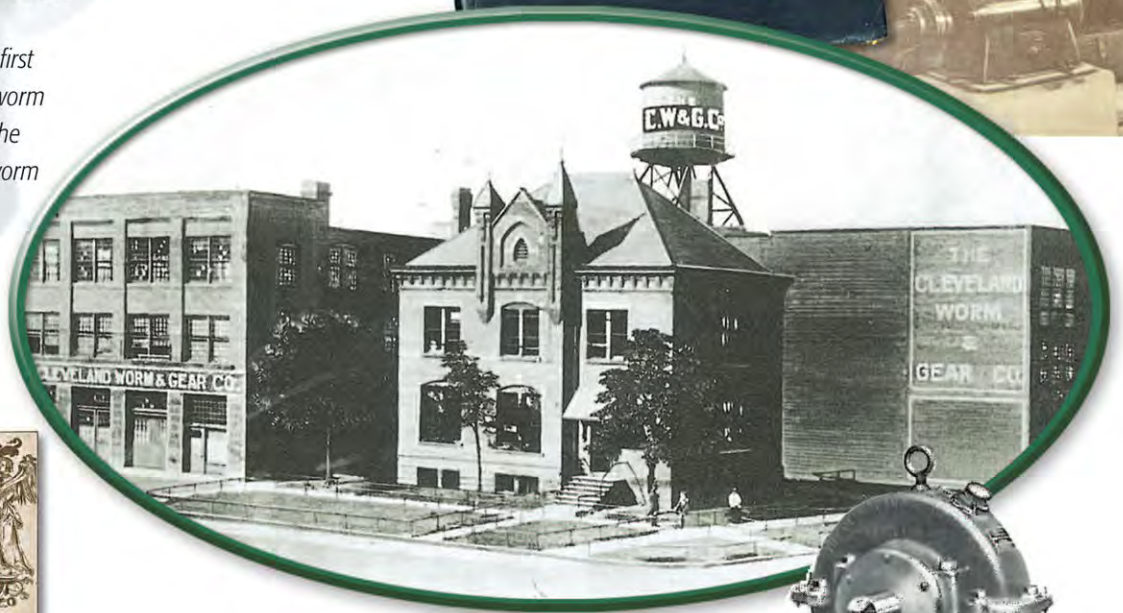
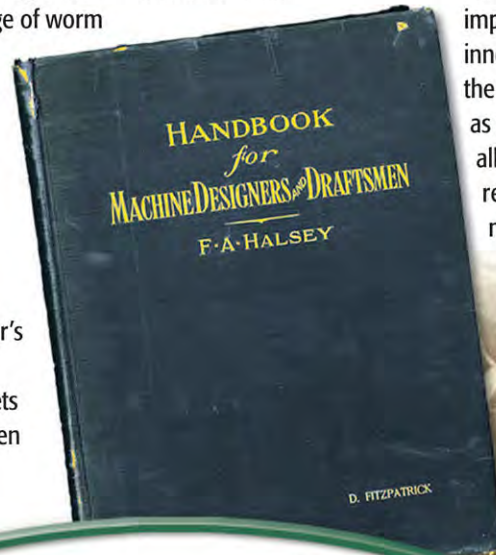
Cleveland Worm & Gear is founded by F. M. Gregg as president; David Fitzpatrick as vice president and general manager; and C. J. Fitzpatrick as secretary and treasurer. David Fitzpatrick brought an extensive knowledge of worm gear design and operation from his home of Leeds, England, with the objective of introducing the technology to the United States. His company's first year's production output resulted in 2,000 sets of gears. Twenty men were employed.

1917

Cleveland worm gear sets were adopted for the Class B truck by the U.S. Government, Packard, Ford, and other axle manufacturers, leading to a booming business for Cleveland Gear.

1918

Cleveland Worm & Gear introduced the first standard industrial line of worm gear speed reducers to the market. The American Gear Manufacturers Association was so impressed with this innovation that it adopted the Cleveland product line as the standard by which all worm gear speed reducers should be manufactured.



U.S. Population
106,021,537

First Miss America
Pagent

First Winter
Olympic Games

J. Edgar Hoover
Heads FBI

Radiovision
Is Born

First Flight To North
Pole And Back

Lindbergh First
Trans-Atlantic Flight

Pop Up
Toaster

Garage
Door

Cotton
Swab
Frozen
Food

Garage Door
Opener

Drive
Throughs

Bread
Slicer

1920

David Fitzpatrick was awarded a patent for "Improvements in Processes of Casting Worm Gear Wheels and a Worm Gear Thread Grinder." He felt that while worm gear design and manufacture was fine, improvements were necessary for the future.

1924

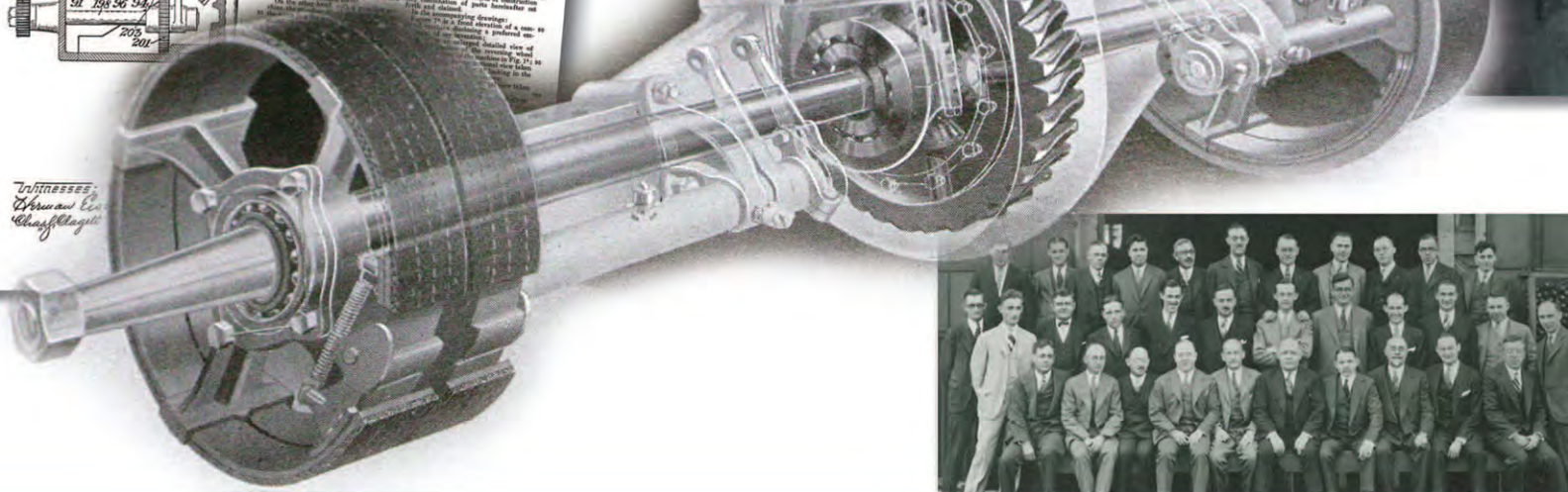
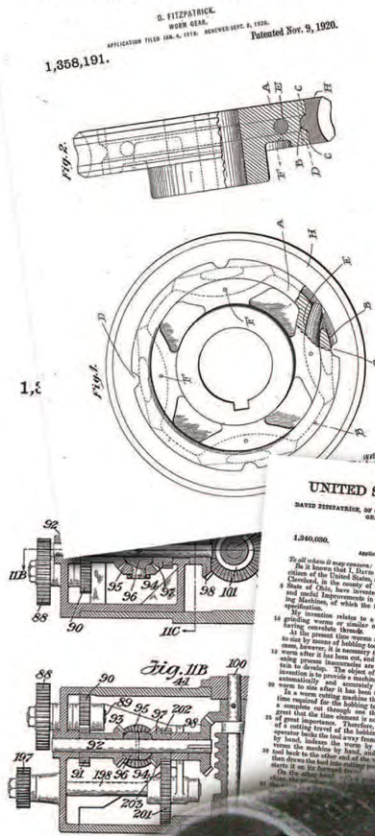
The first worm gear speed reducer designed specifically to handle high over-hung loads is introduced.

1925

The first box-type housing is introduced, increasing heat dissipation during operation. Production was begun at 3260 East 80th Street.

1927

The first one-piece housing is introduced, allowing smaller worm gear units to be produced. Miniaturization has begun!



Advent Of Talking Pictures

Stock Market Crash

Prohibition Ends

Pearl Harbor Attacked

U.S. Declares War On Germany

FDR Elected President for 4th Term

World War II Ends

Garbage Disposal

Bubble Gum

Frozen Food

Drive-In Theatre

Deodorant

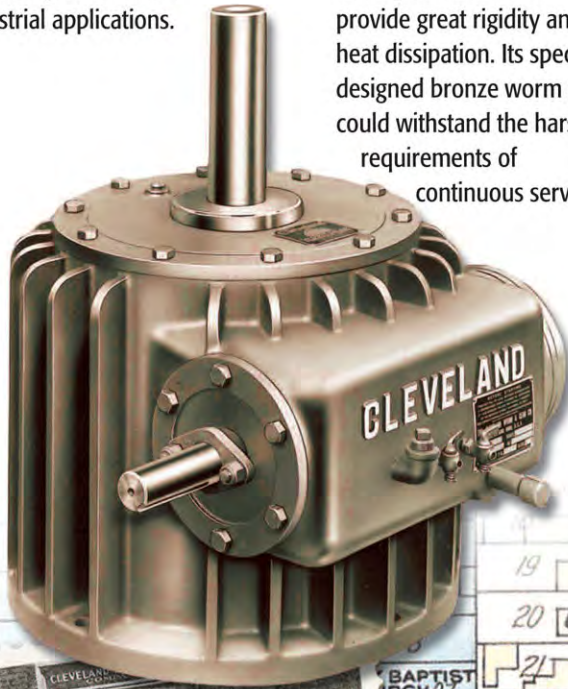
Corn Dog

Napalm

Microwave Oven

1928

Cleveland Worm & Gear relocates to its current address, 3249 E. 80th Street, Cleveland, Ohio. The relocation allows for production of larger worm gearing and gear reducers for industrial applications.



1941

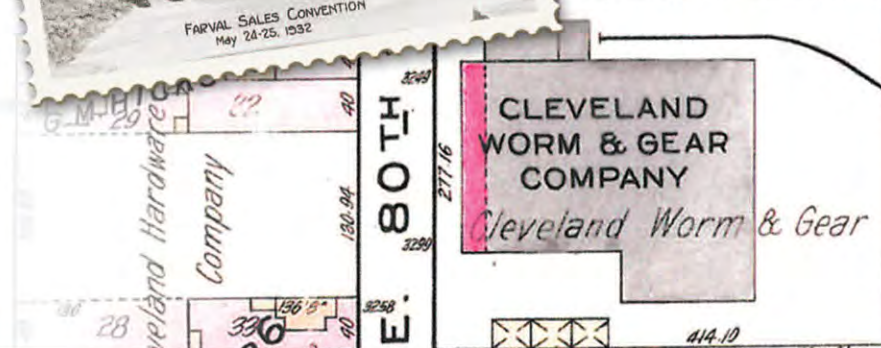
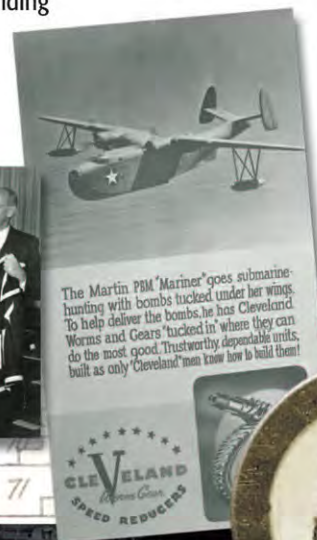
The CU unit is introduced to eliminate the problems encountered when driving induced-draft cooling tower fans. The drive's iron-cast housing features vertical ribbing on all sides to provide great rigidity and heat dissipation. Its specially designed bronze worm gear could withstand the harsh requirements of continuous service.

1943

Cleveland Worm & Gear is awarded the prestigious Army-Navy "E" Award for distinguished service to the war effort, recognizing the company's contribution to the war effort during World War II. Cleveland Gear not only supplied worm gearing to essential defense and munitions industries, it built thousands of worm gear drives for use on fighting ships, planes and landing craft. The company received the Award again in 1944 and 1945.

1944

The Speedaire® line of fan-cooled worm gear speed reducers is introduced, setting a new standard of worm gear performance by increasing the unit's horsepower capacity with a reduction in overall size. Its design is the result of years of research into the problem of tooth contact temperature and heat dissipation during gear operation.



Korean War Begins

Geodesic Dome Patented

Racial Segregation Unconstitutional

Soviets Launch Sputnik

Alaska & Hawaii 49th & 50th States

Berlin Wall Built

Watergate Break-In

Hair Spray

Credit Card

Bar Code

Marker Pen

TV Dinner

Air Bubble Packing

Integrated Circuit

Weather Satellite

Artificial Turf

Cordless Telephone

Post-It Note

1950

Cleveland Worm & Gear begins its first facilities expansion by adding offices to the manufacturing plant.



1953

Introduction of the Cleveland mechanical speed variator



1957

Cleveland Gear installs the first of two large Pfauter gear hobbors, expanding gear capability to 54" CD. Case hardening of worm threads using the flame hardening process is initiated. Both the Pfauter hobbors and flame hardening are still in use in 2012.



1959

Cleveland Worm & Gear is acquired by Eaton Axle & Spring (later called Eaton Yale & Towne and, today, Eaton Corp.). It was then known as the Industrial Drives Division of Eaton Axle & Spring. The Cavex® line of worm gear speed reducers is introduced, featuring greater load carrying capacities, a reduction in surface stresses, and superior gear action due to worm thread geometry.

1973

The Kearney & Trecker I CNC horizontal machining center, Cleveland Gear's first CNC production machine, is installed. It is still in use today.



ANKS!
Car
up
it
it
ers
top
top
the
re
et.

Three Mile Island
Nuclear Accident

Exxon Valdez
Oil Spill

Hubble Telescope
In Orbit

Gulf War
Ends

World Series
Cancelled By Strike

The Simpsons
Sets TV Record

Dow Jones
Hits 10,000

IBM Invents
the PC

Cabbage Patch
Kids

World Wide
Web

Digital Answering
Machine

Blogging

Pentium
Processor

Mars
Rover

Fuel
Cell

1980

The Benenson family's Vesper Corporation, now Industrial Manufacturing Company, acquires Cleveland Gear and its subsidiaries Farval Corp. and Hellan Strainer from Eaton Corporation. Both the Hellan Strainer Company and Farval are now separate operating companies within IMC.

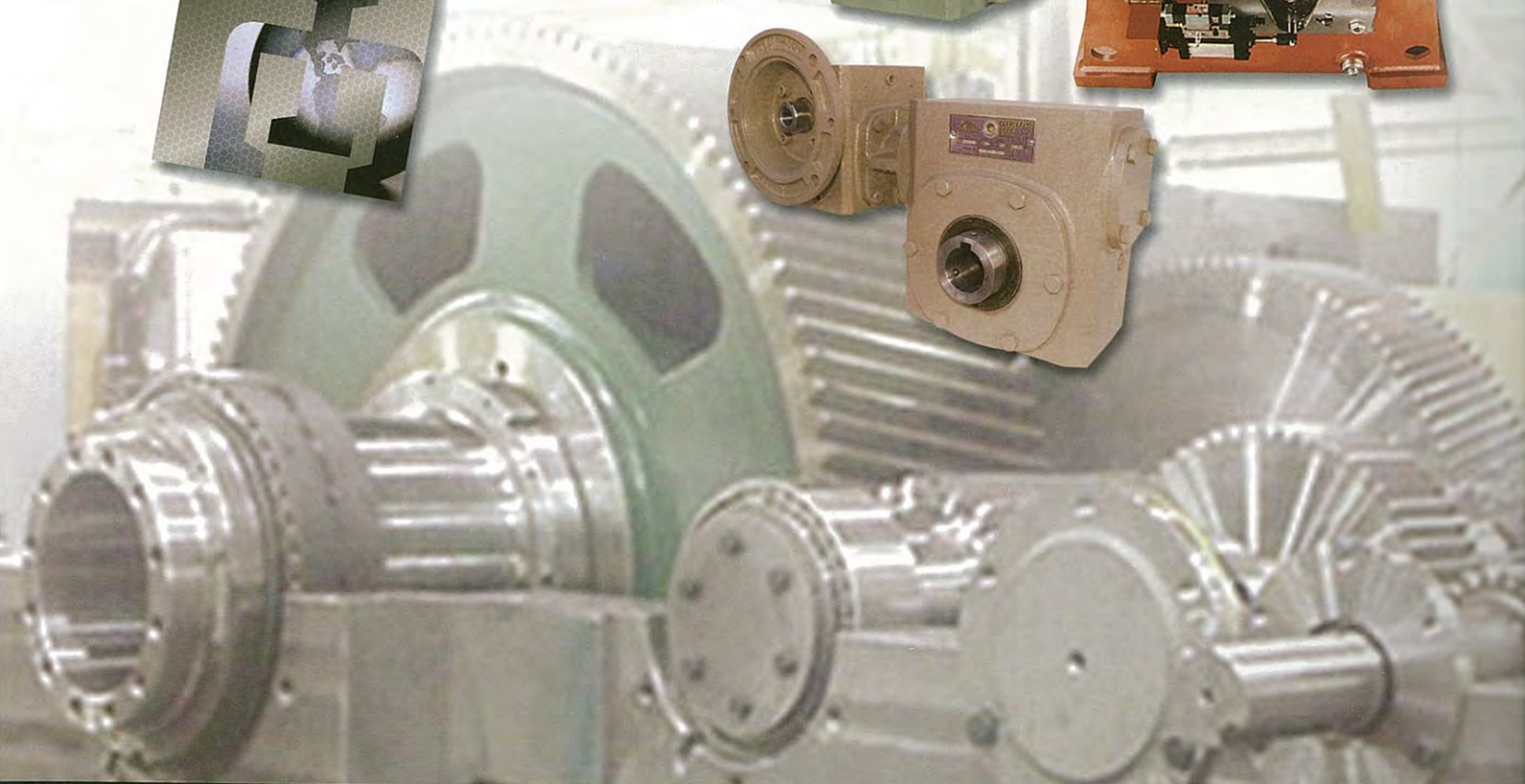
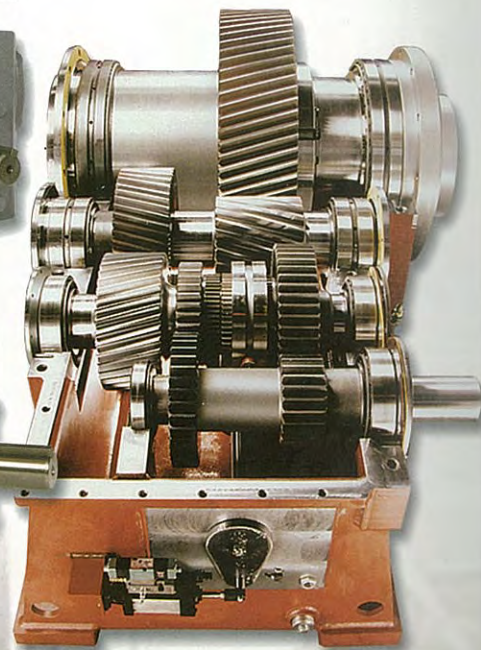
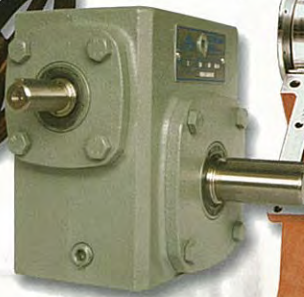


1992

Cleveland Gear introduces the Cleveland "M" series modular speed reducers expanding its product range down to 1.33" CD.

1996

Cleveland Custom Parallel Shaft Reducers for steel strip processing applications are introduced to the market.



9/11 Terrorist
Attack

US Population
300 Million

BP Oil Rig
Explosion

i Pod

Hybrid
Car

YouTube

Camera
Pill

2006

The company designs and begins production of custom worm gearing for triplex pumps installed in high-pressure fluid injection applications for the oil and gas industries. Hydraulic fracturing is one of these applications.

2010-12

Three Gleason/Pfauter CNC Gear Hobbers are installed to improve manufacturing efficiency and increase throughput. The Gleason 2400 can hob our largest worm gears and expands our helical gear production capability.



On behalf of the management team at Cleveland Gear, we hope you can use this brochure as a means to “celebrate and remember” the rich heritage and history of Cleveland

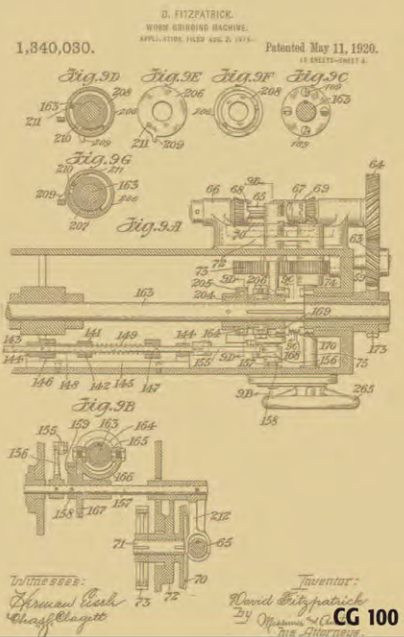
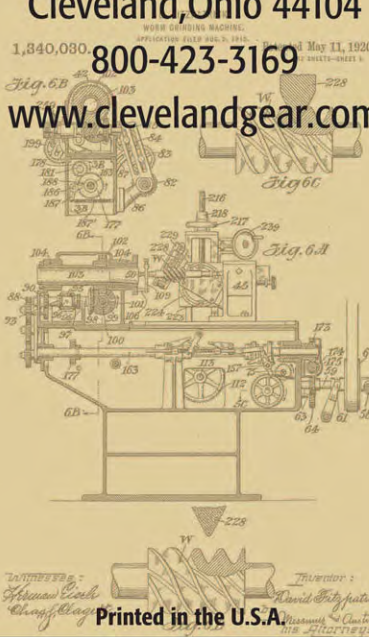
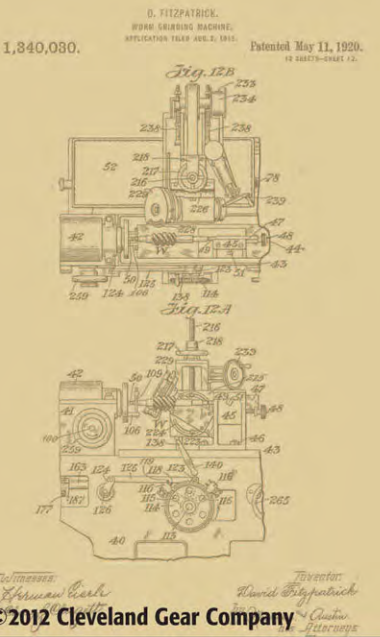
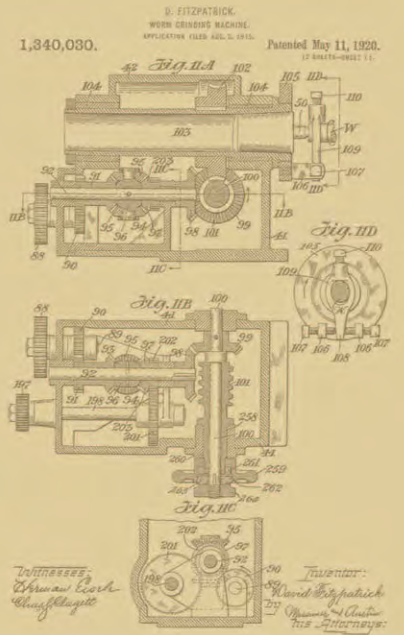
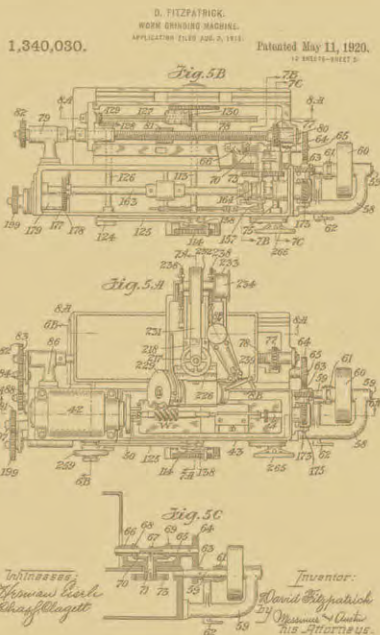
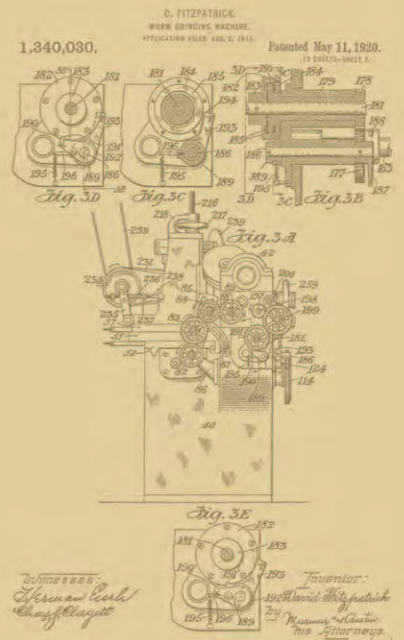
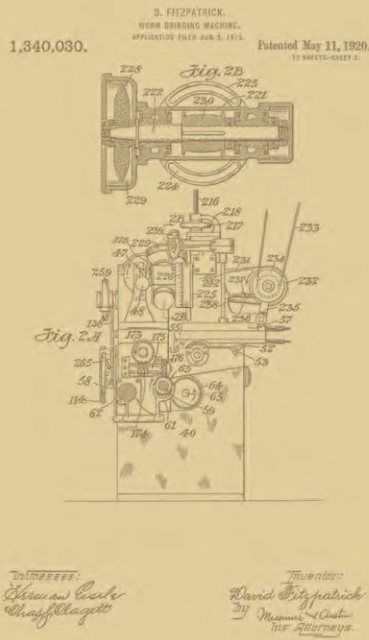
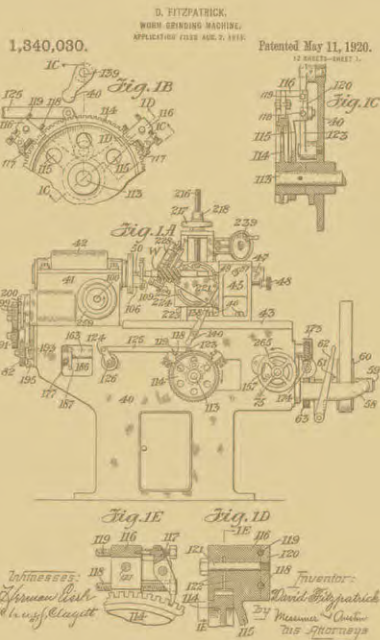
Gear. For those of you who had the opportunity to join us at our 100th Anniversary Open House, I want to thank you for sharing in our celebration. I hope you enjoyed touring the plant, perusing the archives, and reconnecting with old friends.

It is fitting that our slogan commemorating this event is that **“We are proud of our past, but looking forward to our future.”** Few companies get to experience a “Centennial Celebration” with the same name and in the same location, as the average life expectancy of the typical large American enterprise is less than fifty years. When you think, in the last decade alone, of the long list of big corporate failures, it makes you proud that Cleveland Gear is enjoying record sales and prosperity, celebrating its 100th year of operation.

So today, while we celebrate our past, we are looking forward to our future. Our history of pioneering and leading the worm gear industry has built a strong foundation for our future. We are fortunate that our owners, the Benensons, believe in investing in the business, and we thank them for their capital support that has positioned us for continued growth and the ability to take advantage of today’s robust market conditions. Our company now operates on a global basis, helping us stay competitive, strengthening our business, and creating new jobs.

People continue to be our most important asset, and we are thankful for all our current employees and honor all past individuals who contributed to Cleveland Gear’s success. Cleveland Gear has been a stalwart in the industry and the community, building strong relationships with both customers and suppliers. We’re grateful to them for their loyalty and support during these first 100 years, and look forward to continued growth and stability during the next century.

Dana Fink
President



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