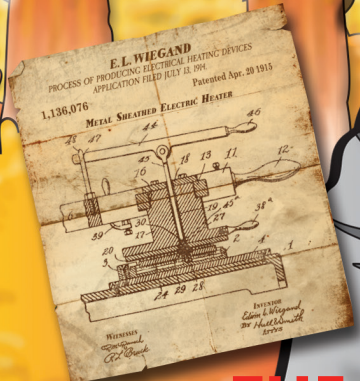
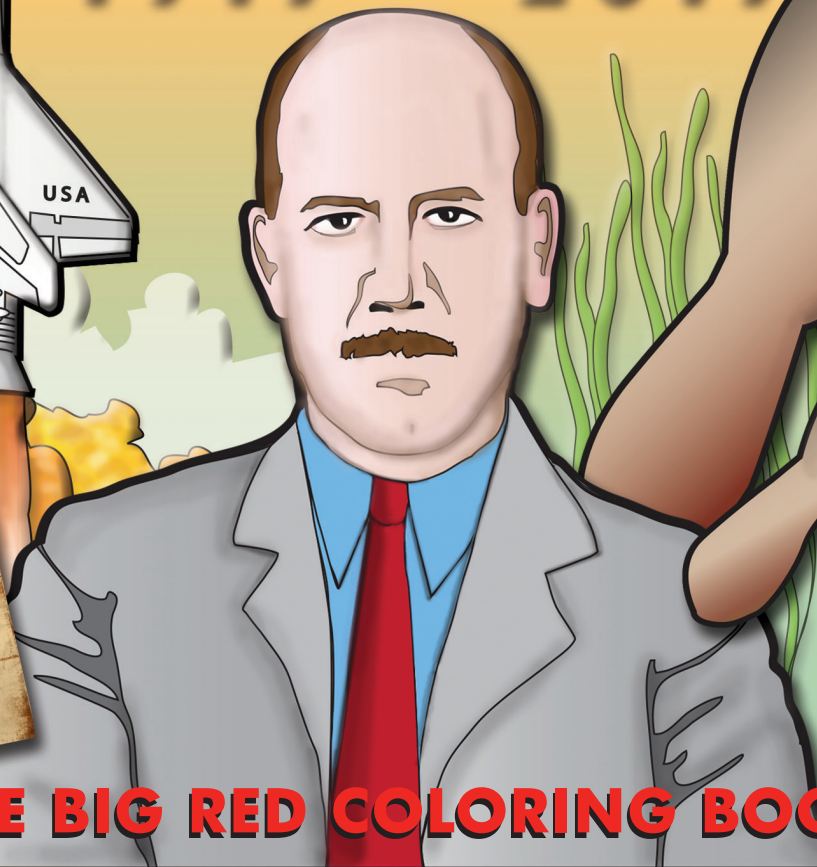
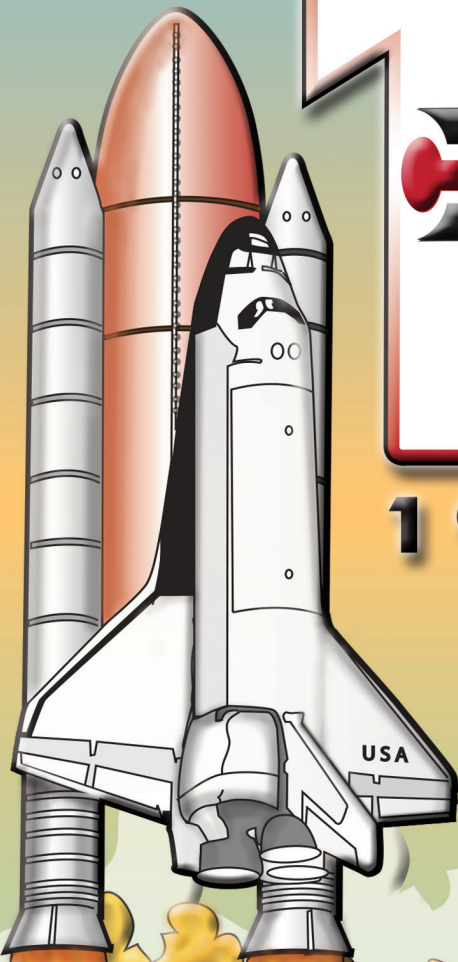


100

CHROMALOX

1917 - 2017



THE BIG RED COLORING BOOK

100 CHROMALOX

1917 - 2017

**Published by Really Big Coloring Books®, Inc.
United States | Canada | United Kingdom | Europe**

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A True to Life Graphic Comic Coloring Book – Chromalox® 100 Years
Pictures and text provided by Chromalox®
Illustrations, Artwork, Format, layout design by Really Big Coloring Books®, Inc.

1. Comic Coloring Book - Educational-Youth to Adult. 2. Teaching Tool Chromalox®100 Years
Summary: Designed for youth to adult comic book reading, writing and for understanding Chromalox.

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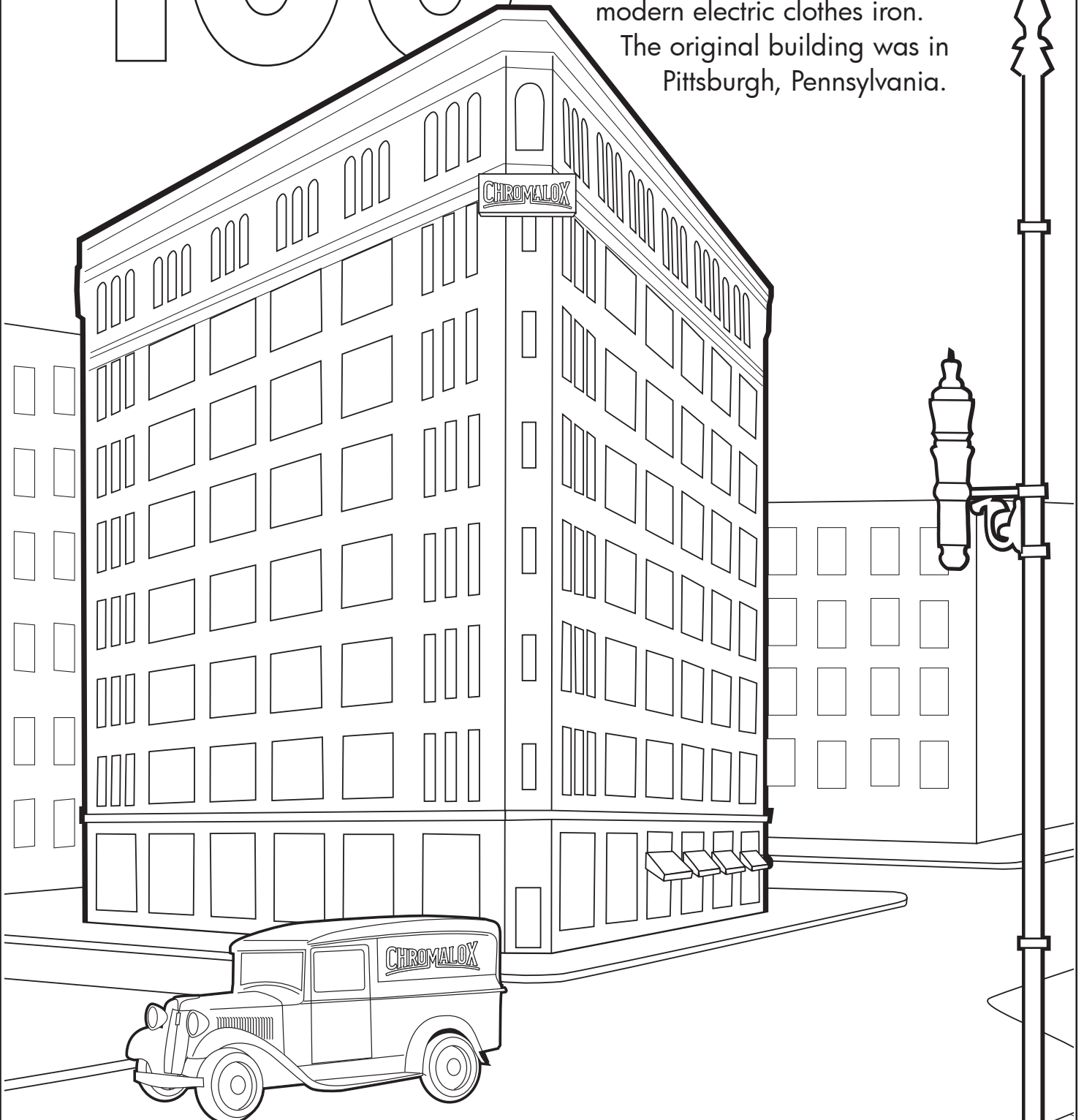
www.ColoringBook.com

1000

100 Years With Chromalox

Edwin L. Wiegand founded Chromalox in 1917 and began producing the strip heater for what would become the modern electric clothes iron.

The original building was in Pittsburgh, Pennsylvania.



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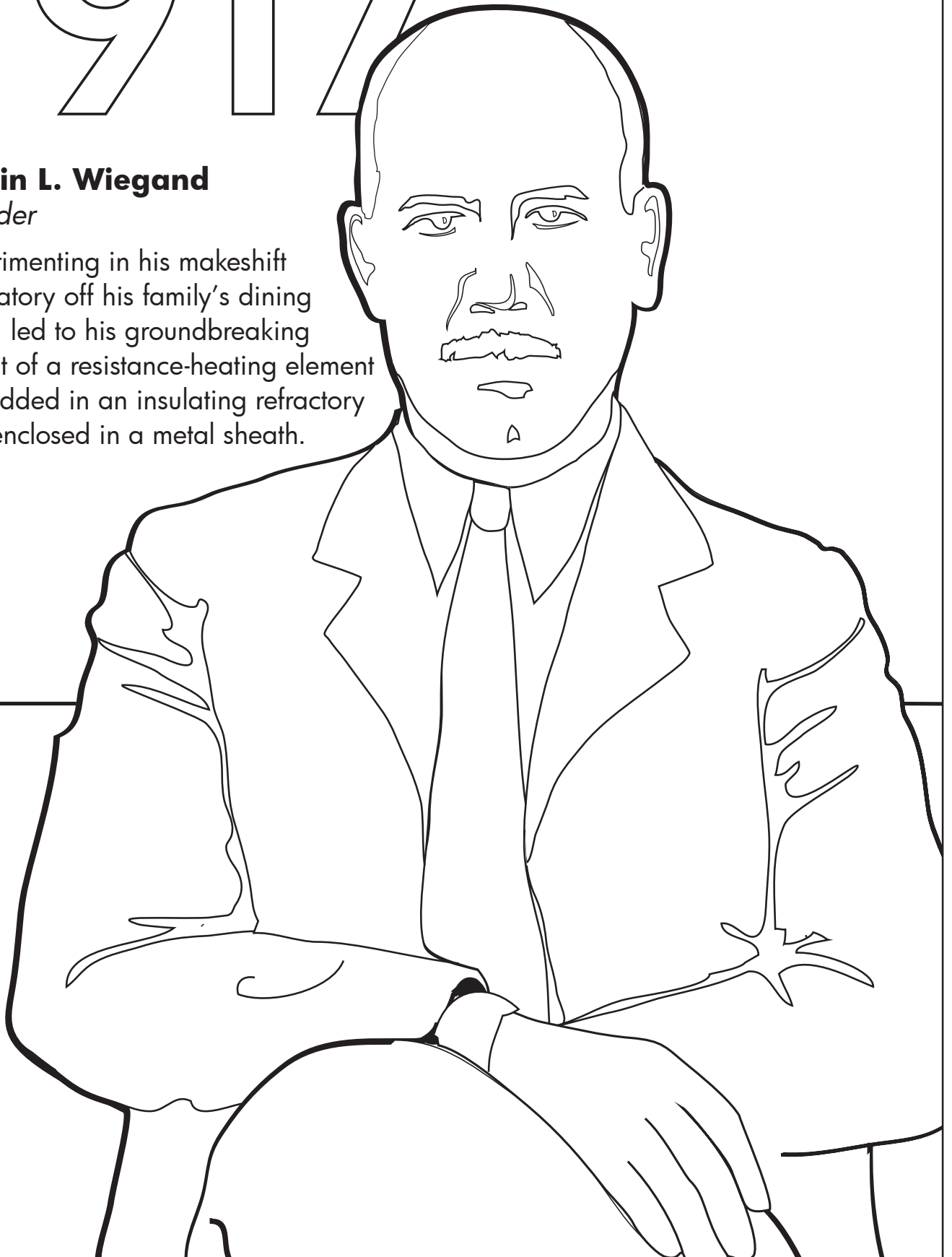
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1917

Edwin L. Wiegand

Founder

Experimenting in his makeshift laboratory off his family's dining room, led to his groundbreaking patent of a resistance-heating element embedded in an insulating refractory and enclosed in a metal sheath.



Edwin L. Wiegand's Original Patent

E.L. WIEGAND

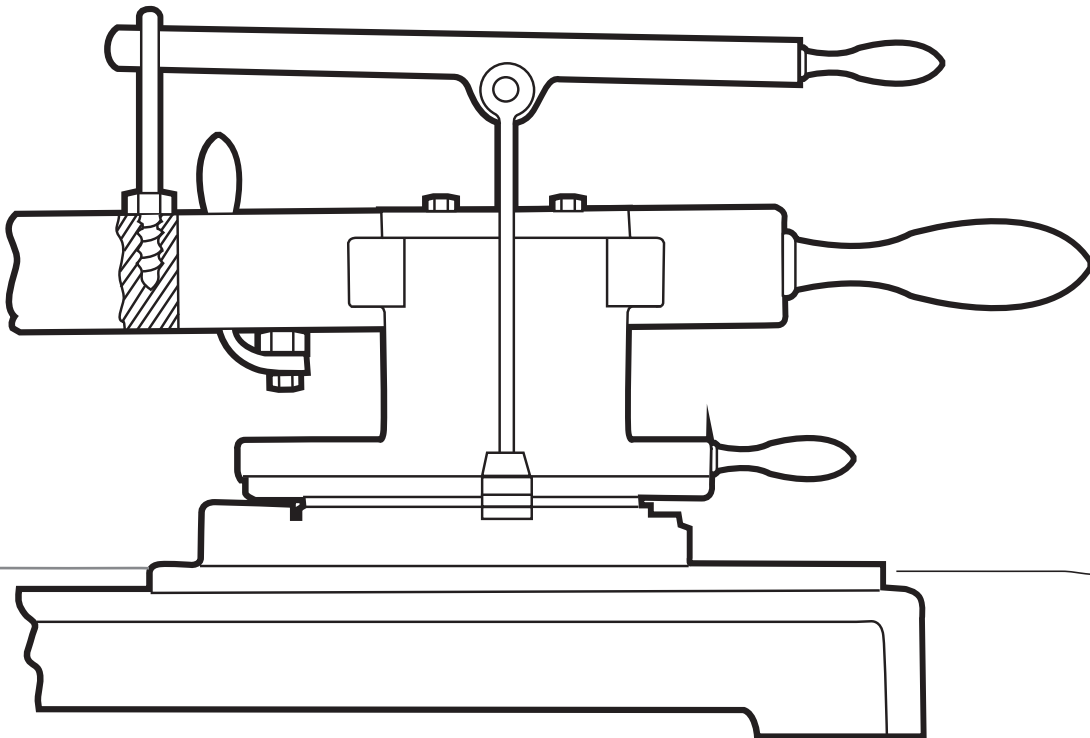
PROCESS OF PRODUCING ELECTRICAL HEATING DEVICES

APPLICATION FILED JULY 13, 1914

1,136,076

Patented Apr. 20, 1915

METAL SHEATHED ELECTRIC HEATER



WITNESS

*Wm. Wiegand
P. L. Bruce*

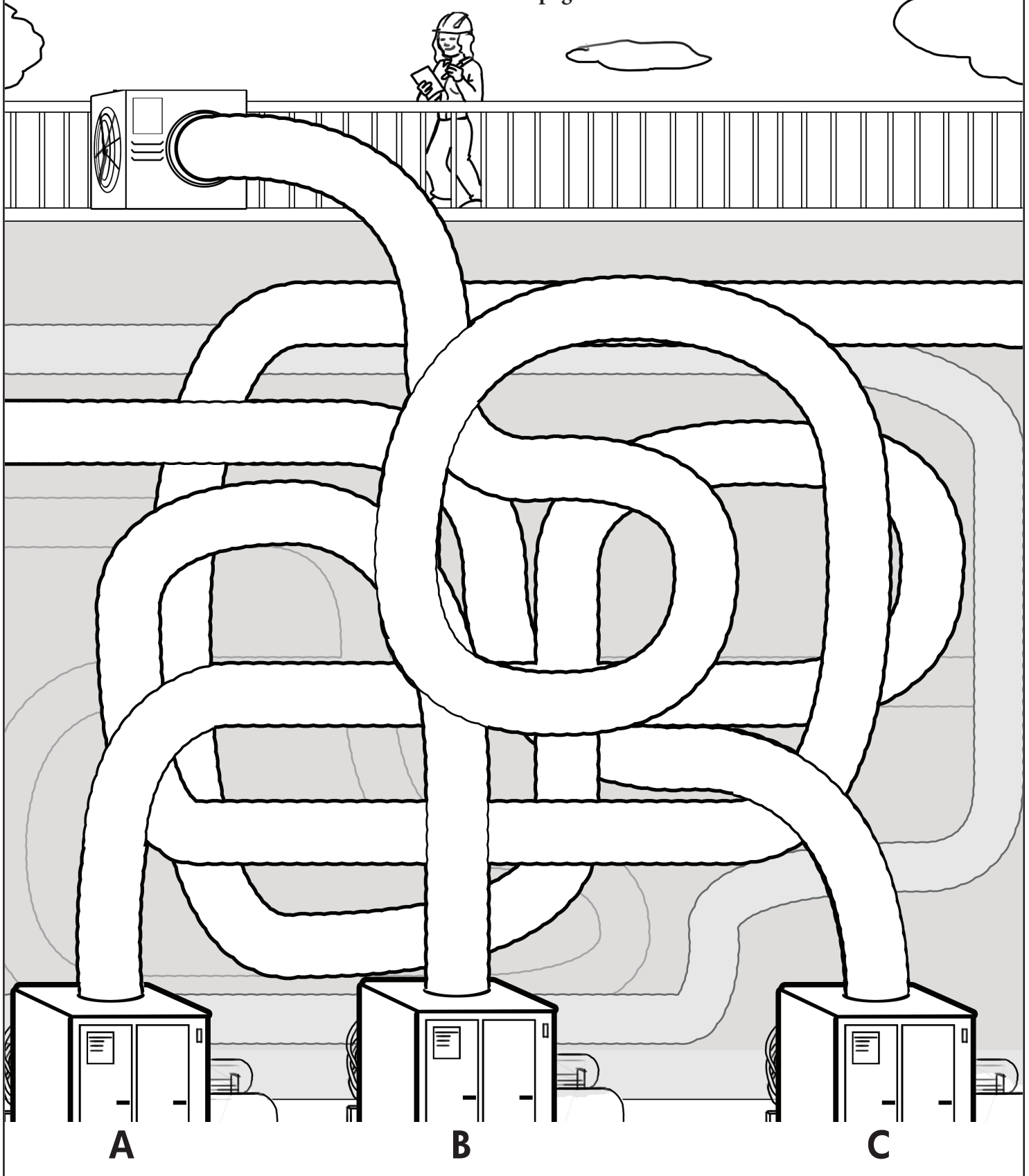
INVENTOR

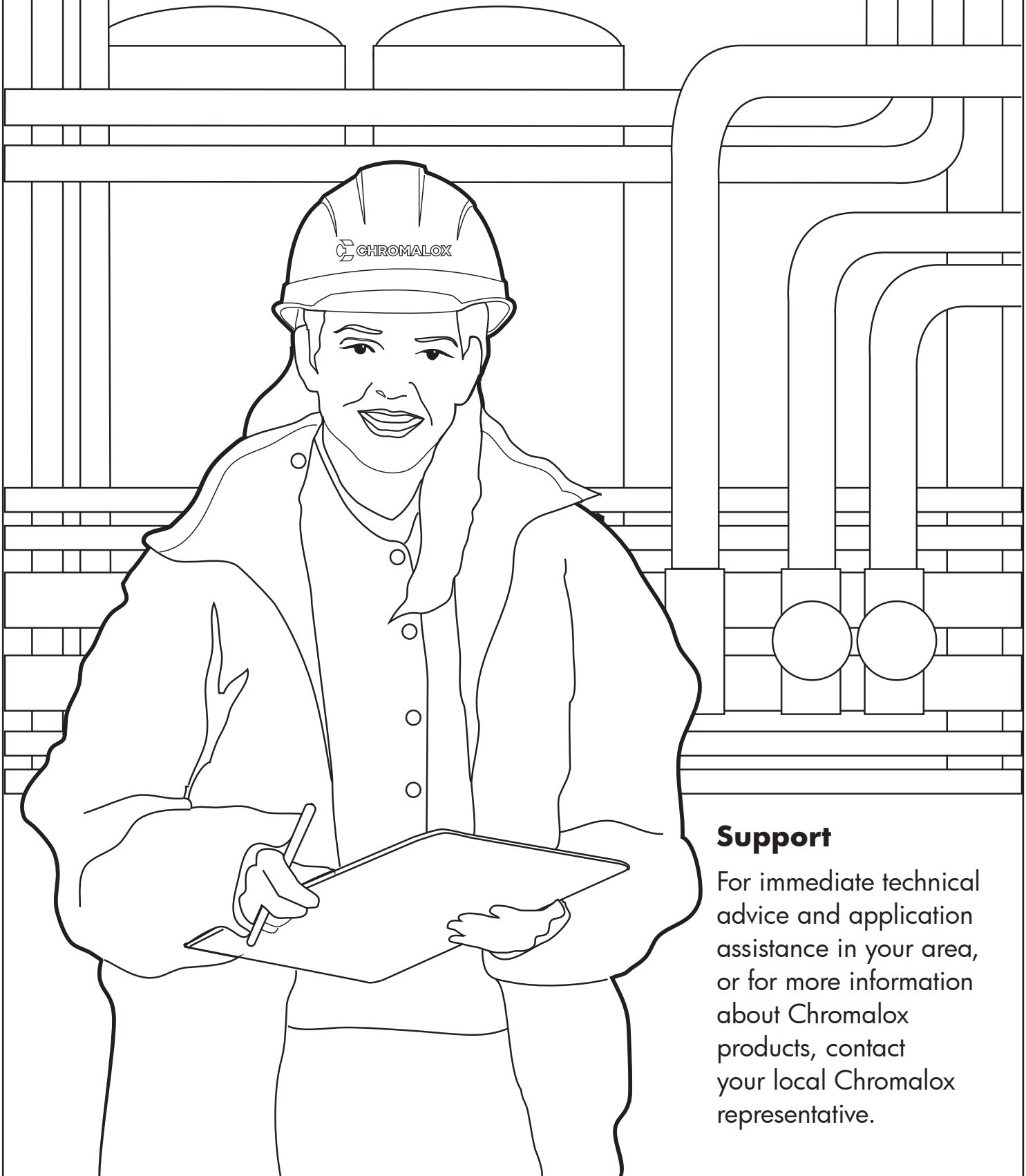
Edwin L. Wiegand

 **CHROMALOX**

Help Our Engineer Find Her Way To The Correct Heater

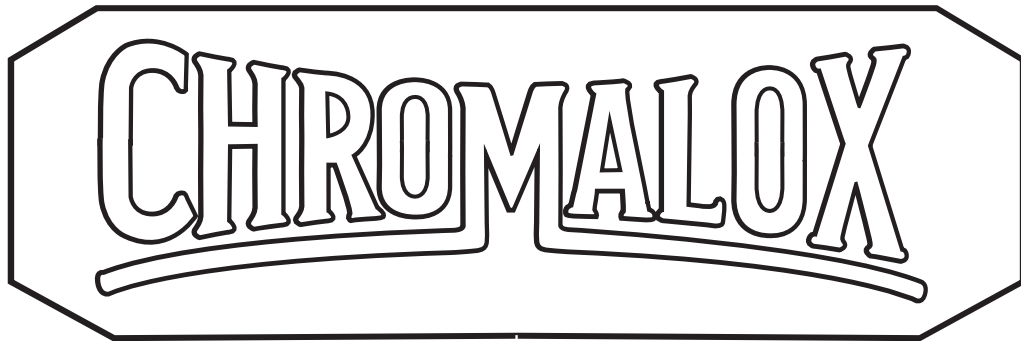
Solutions on page 31





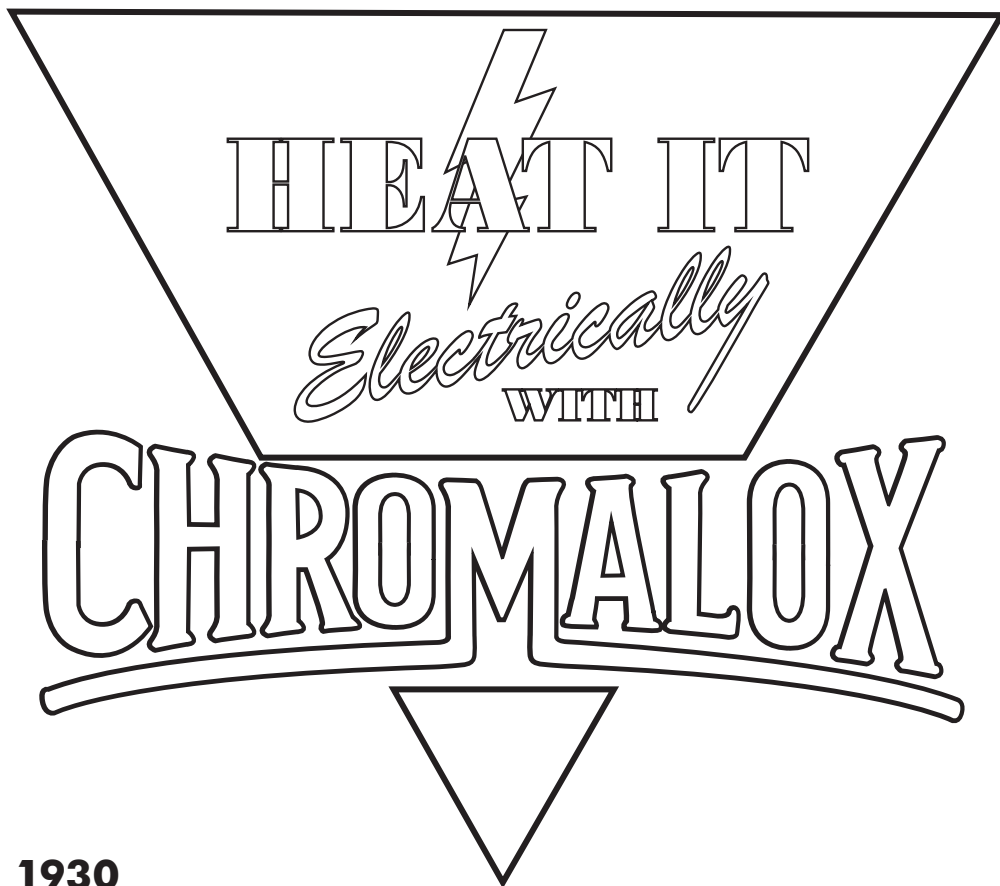
Support

For immediate technical advice and application assistance in your area, or for more information about Chromalox products, contact your local Chromalox representative.



1917

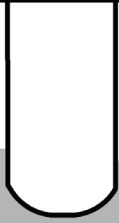
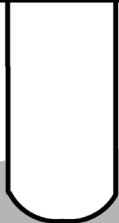
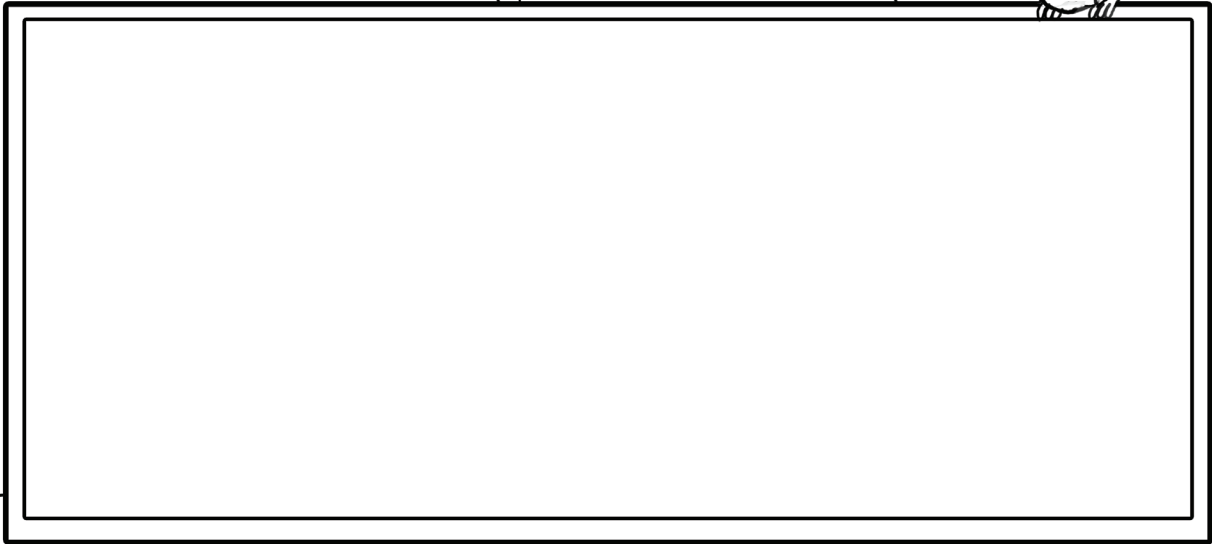
The original Chromalox logo. Designed in 1917.



1930

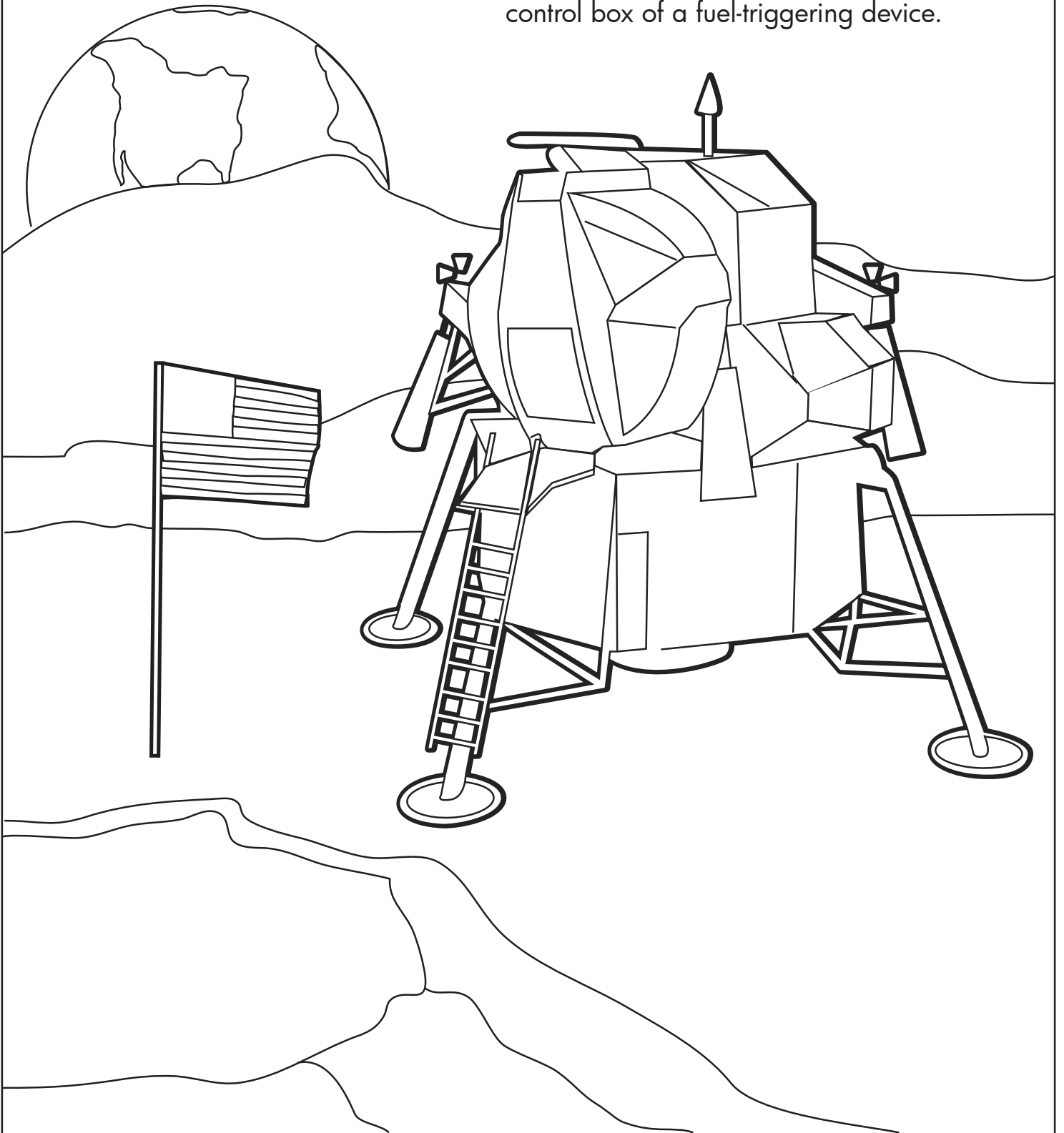
A new Chromalox logo for 1930.

Design your own Chromalox logo!



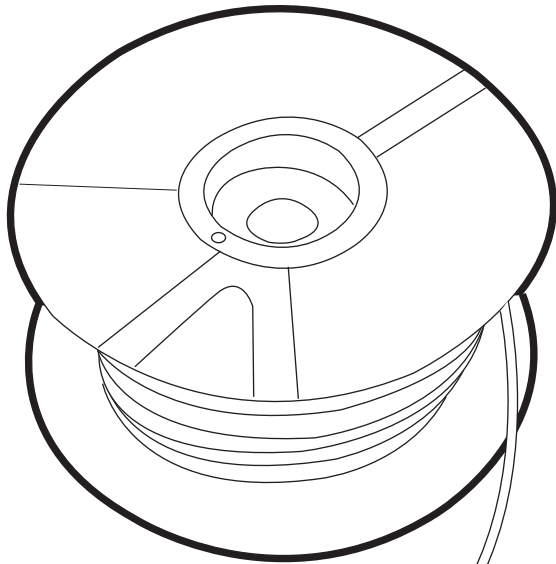
Chromalox on the Moon

Chromalox achieved another "first" when a strip heater landed on the moon. In 1969, the Apollo 11 lunar module used a strip heater in the electronic control box of a fuel-triggering device.

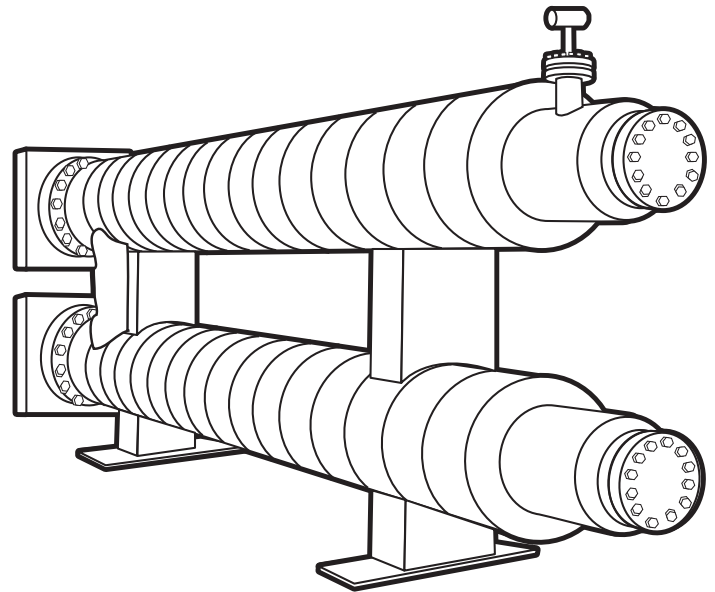


CHROMALOX

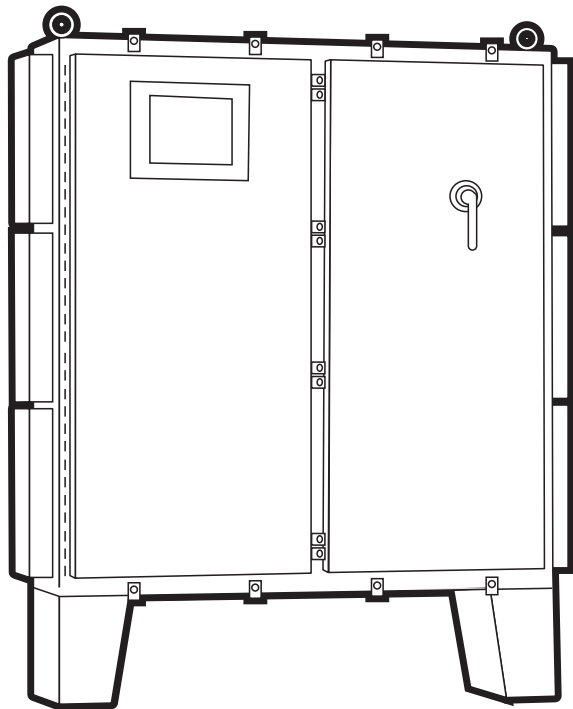
Chromalox is proud of our comprehensive product and service offering in three distinct business segments.



1. Heat Trace

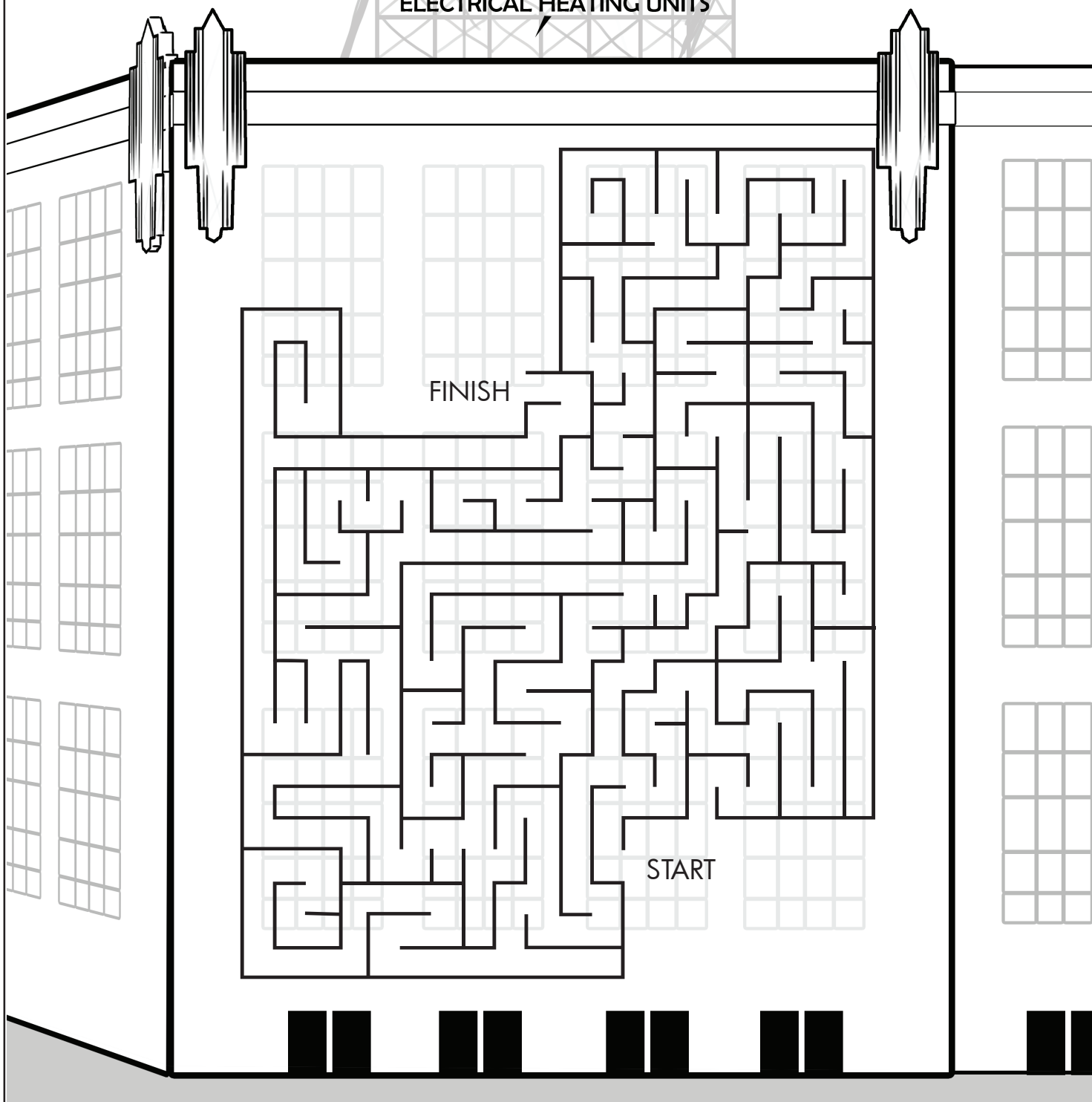


2. Industrial Heaters and Systems



3. Component Technologies

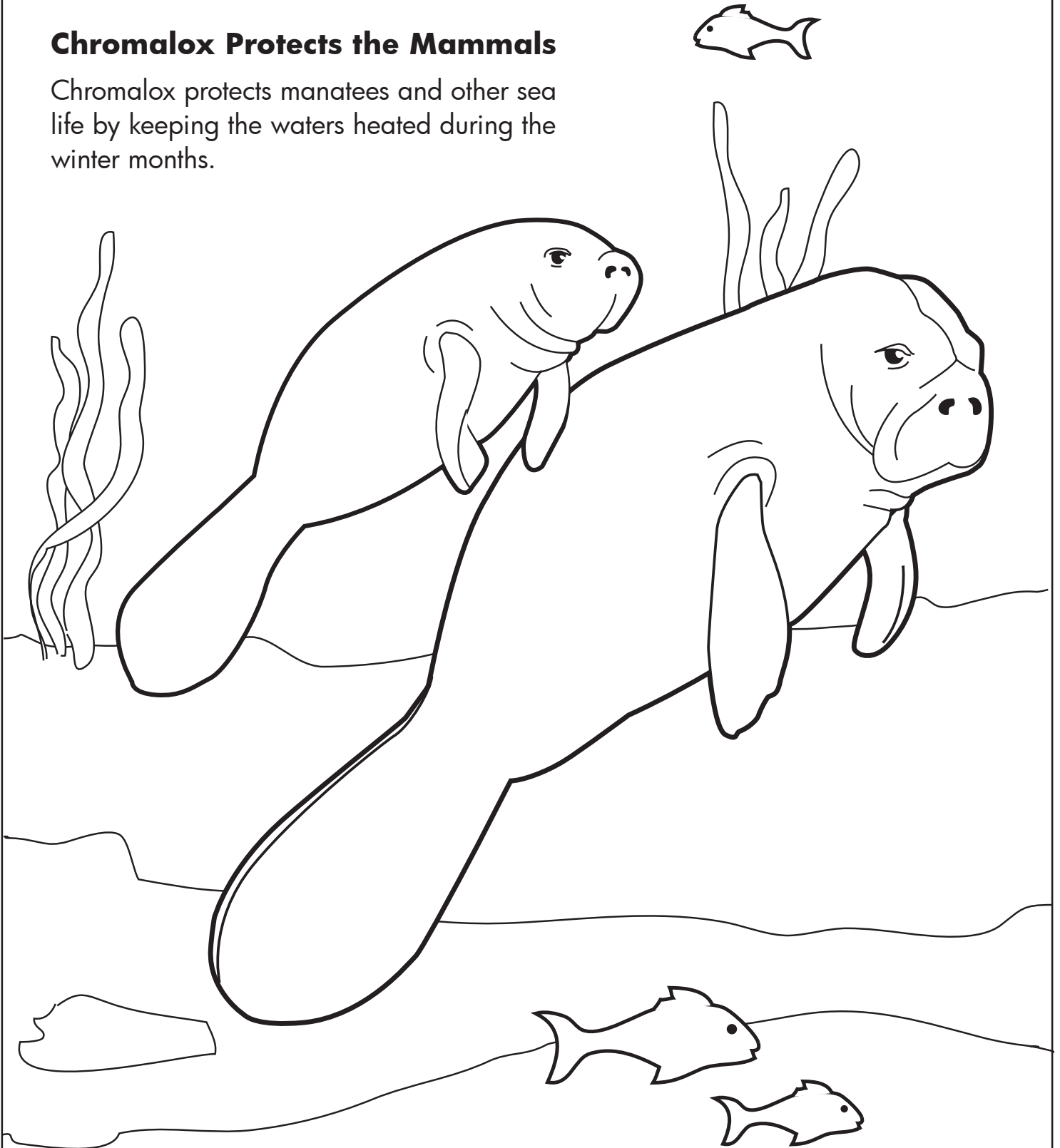
Navigate your way through the original Chromalox building which was located in Pittsburgh, Pennsylvania.





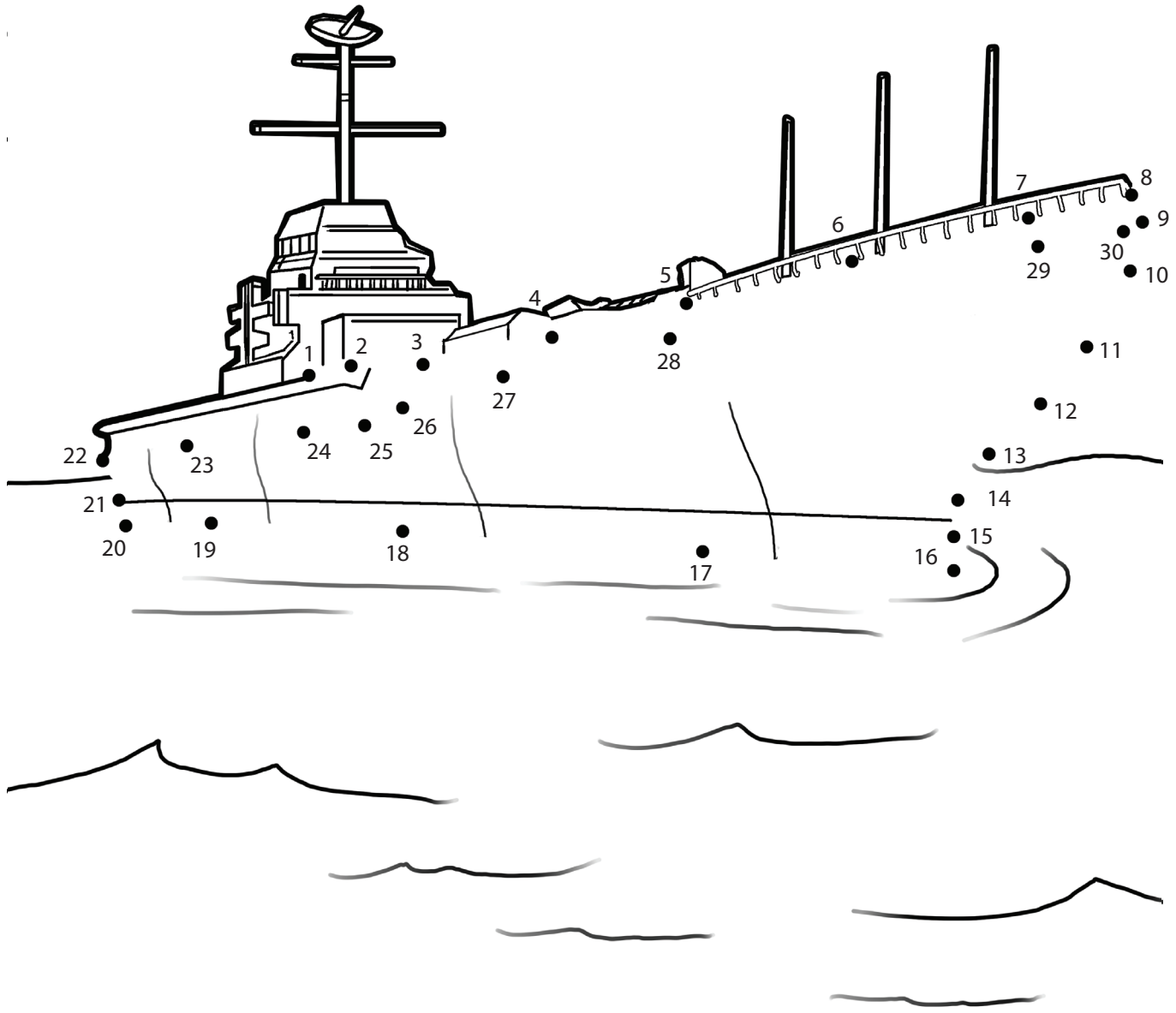
Chromalox Protects the Mammals

Chromalox protects manatees and other sea life by keeping the waters heated during the winter months.



Chromalox heating units are found on US Navy warships and can withstand bomb and torpedo blasts.

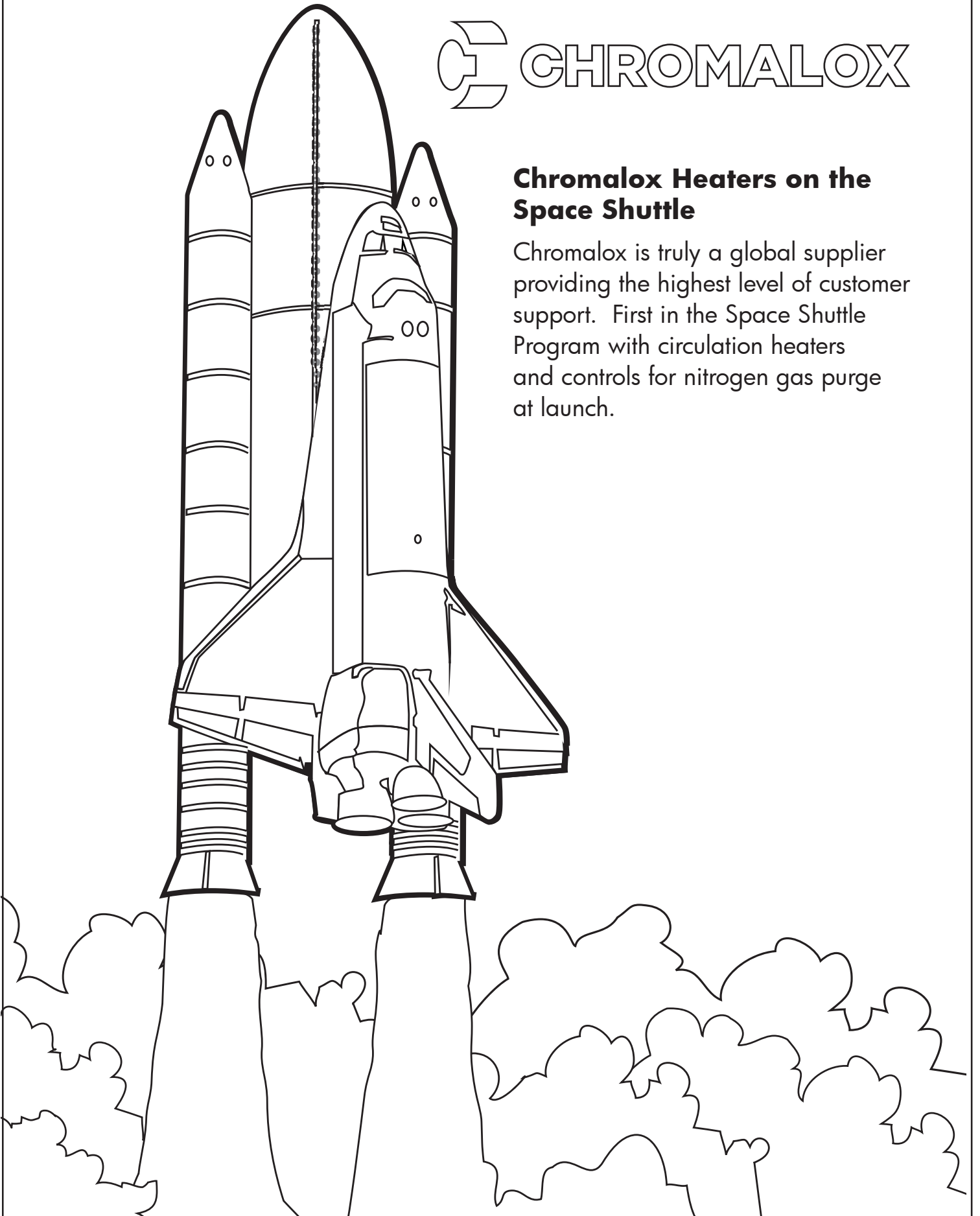
CONNECT THE DOTS to complete the naval ship.





Chromalox Heaters on the Space Shuttle

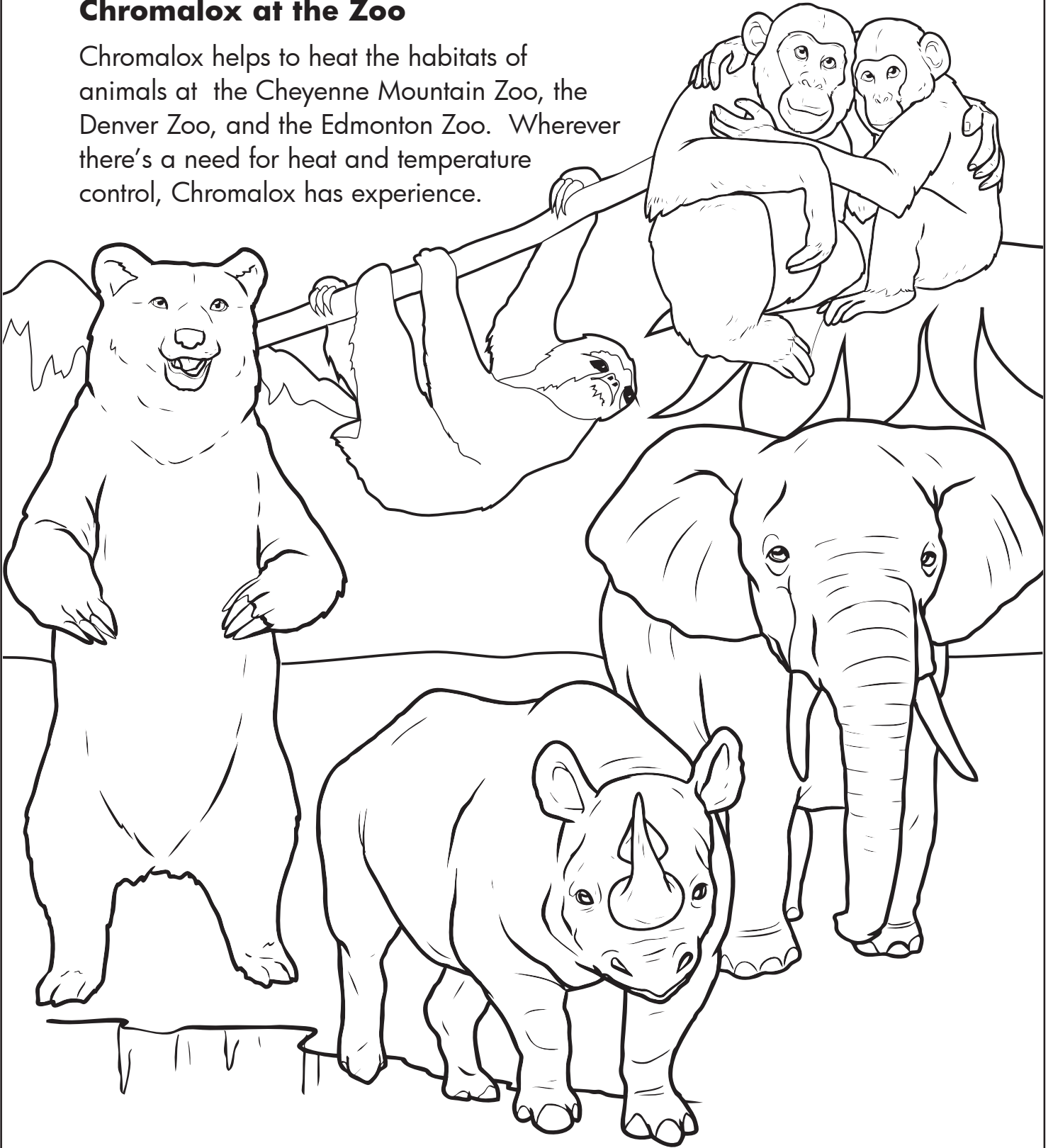
Chromalox is truly a global supplier providing the highest level of customer support. First in the Space Shuttle Program with circulation heaters and controls for nitrogen gas purge at launch.





Chromalox at the Zoo

Chromalox helps to heat the habitats of animals at the Cheyenne Mountain Zoo, the Denver Zoo, and the Edmonton Zoo. Wherever there's a need for heat and temperature control, Chromalox has experience.



WORD SEARCH

Find the words that are part of Chromalox 100 years of history.

N	L	M	R	D	R	H	N	T	M	D	Y	E	D
O	V	H	X	N	P	T	N	B	V	T	C	L	L
O	W	R	C	R	J	R	E	L	I	O	B	E	P
M	T	L	M	G	N	C	D	V	K	L	H	M	I
T	H	E	R	M	A	L	I	M	A	N	T	E	T
N	B	L	M	L	Y	T	N	I	X	H	T	N	T
M	K	W	V	S	C	D	N	B	O	N	H	T	S
L	W	K	I	U	P	N	L	T	L	E	J	T	B
R	R	Z	D	E	E	I	N	T	A	L	L	R	U
M	J	N	W	T	G	E	H	T	M	X	B	N	R
T	O	T	N	R	T	A	I	S	O	T	Y	Q	G
C	T	E	W	A	R	N	N	R	R	T	R	T	H
Y	C	K	P	D	G	K	K	D	H	A	J	L	M
X	P	Y	M	L	H	K	R	Y	C	T	W	Q	R

WORD BANK

BOILER

CENTENNIAL

CHROMALOX

CONDUCTIVITY

ELEMENT

HEATING

MOON

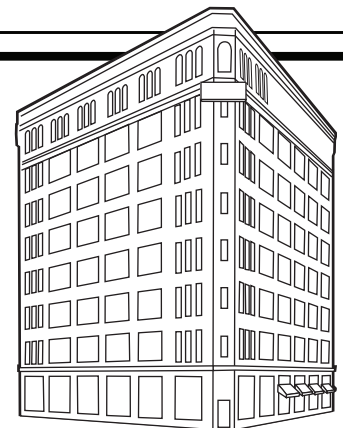
PATENT

PITTSBURGH

THERMAL

WARSHIPS

WIEGAND

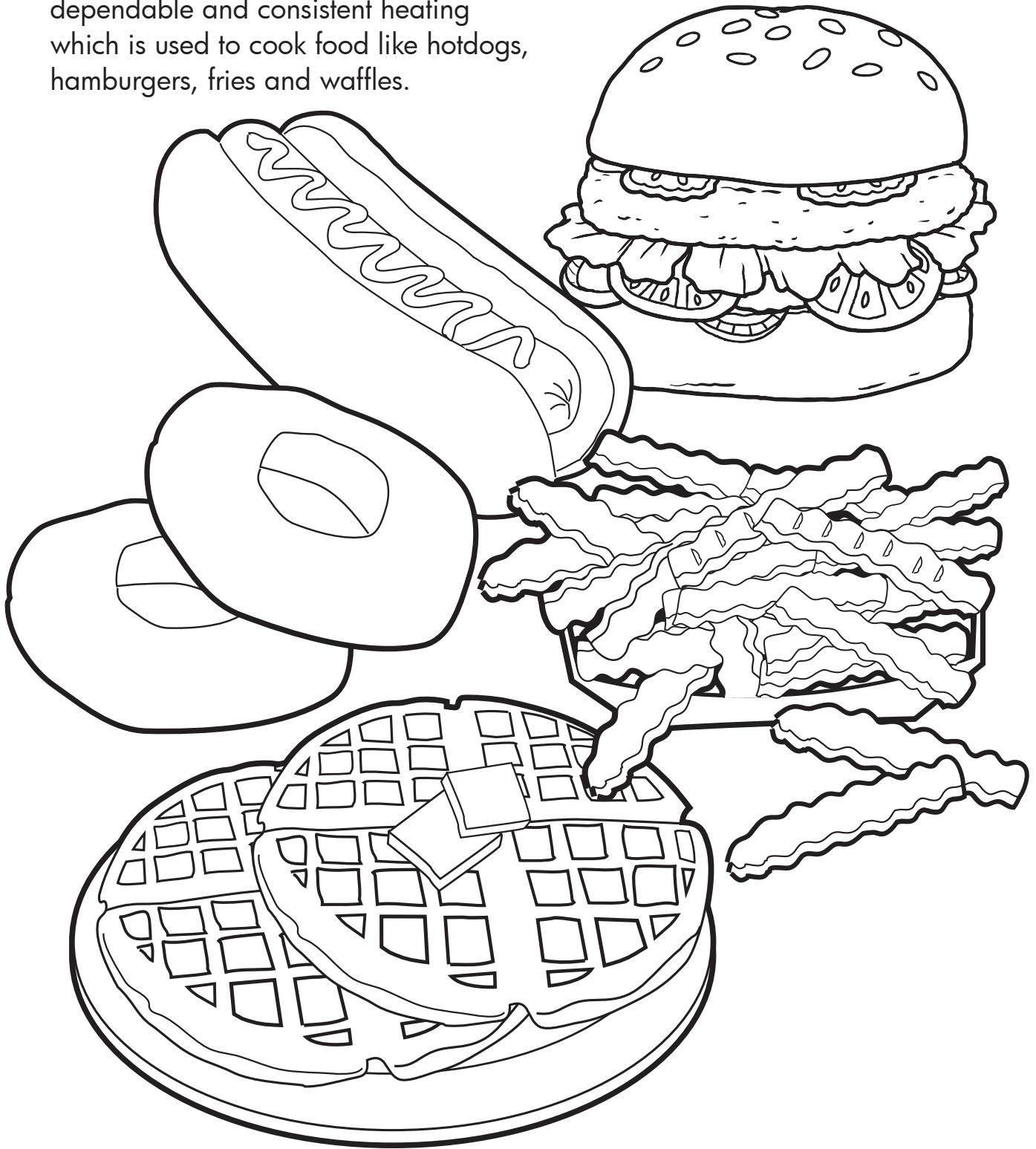


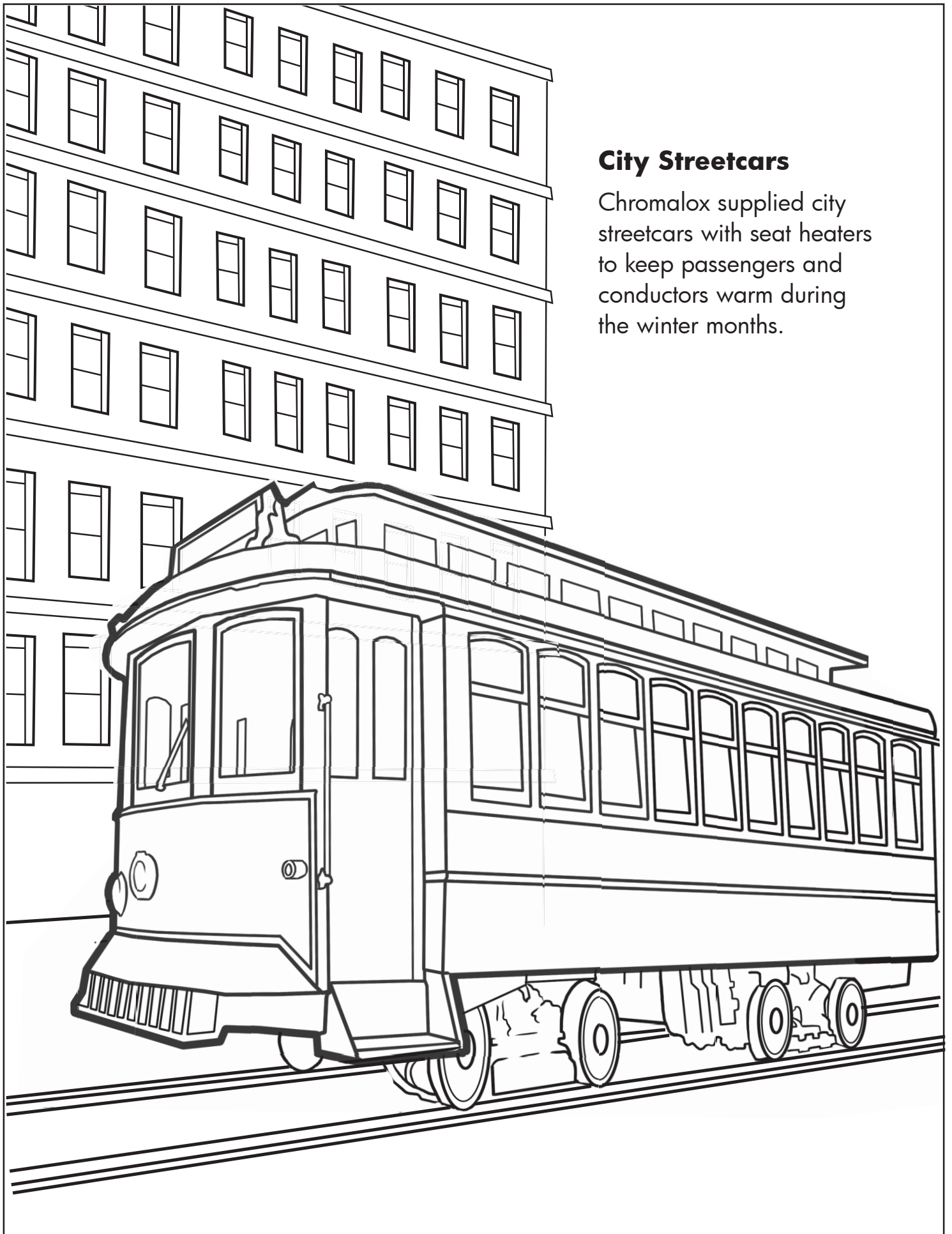
Solutions on page 31



Commercial Food Equipment

Chromalox electric heaters deliver dependable and consistent heating which is used to cook food like hotdogs, hamburgers, fries and waffles.





City Streetcars

Chromalox supplied city streetcars with seat heaters to keep passengers and conductors warm during the winter months.

From spaceships to zoos to office buildings, Chromalox heaters are found everywhere!

Multiple Choice Test

See if you can answer these tough questions about Chromalox.

1. Who founded Chromalox in 1917?

A. Thomas Edison B. Edwin L. Wiegand C. Alexander Bell

2. Where did Chromalox heaters travel to in 1969?

A. Pluto B. The Moon C. Saturn

3. Chromalox heaters can withstand bomb and torpedo blasts on what?

A. Fighter Jets B. Tanks C. U.S. Navy Ships

4. What sea mammal does Chromalox help to protect?

A. Sea Horses B. Manatees C. Jellyfish

5. On city streetcars, what did Chromalox help to heat?

A. Seats B. Wheels C. Roof

6. In what city did Chromalox build its original building?

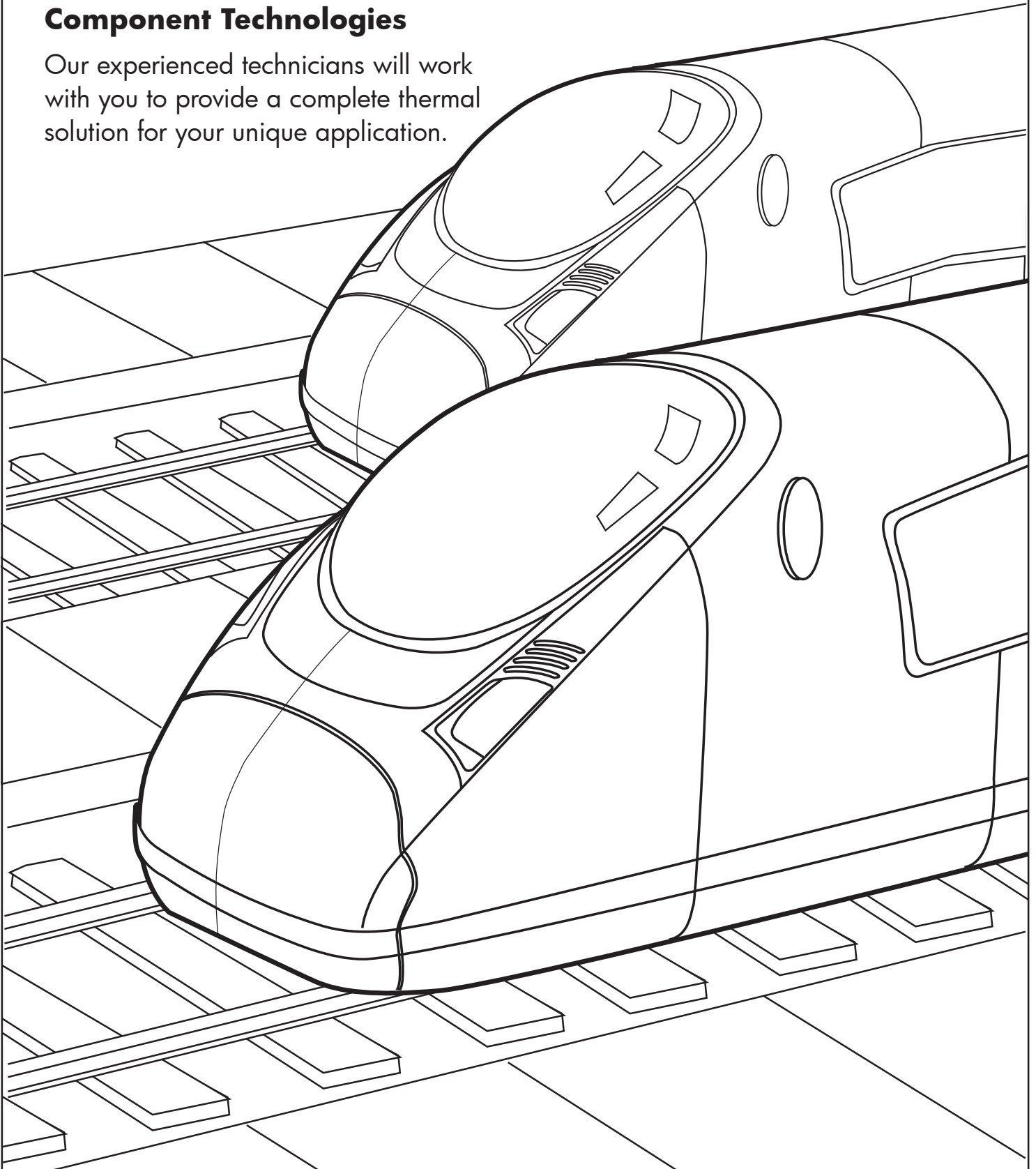
A. St. Louis B. Pittsburgh C. New York

Solutions on page 31



Component Technologies

Our experienced technicians will work with you to provide a complete thermal solution for your unique application.



Match the numbers on the map for each Chromalox location.

See if you know where the place is on the map.



_____ China

_____ France

_____ India

_____ Mexico

_____ Pennsylvania, USA

_____ Tennessee, USA

_____ United Kingdom

_____ Utah, USA



Solutions on page 31

UNSCRAMBLE

these words that are a part of Chromalox history.

TETASRECR

--	--	--	--	--	--	--	--	--	--

LBLGOA

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OEPWR

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LOALY

--	--	--	--	--

OPTLHSIA

--	--	--	--	--	--	--	--

ULANCER

--	--	--	--	--	--	--

ITRHSOY

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DIEWN

--	--	--	--	--

PCSAE

--	--	--	--	--

NRYEEG

--	--	--	--	--	--

UALNR

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ETRHAE

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AFEWFLS

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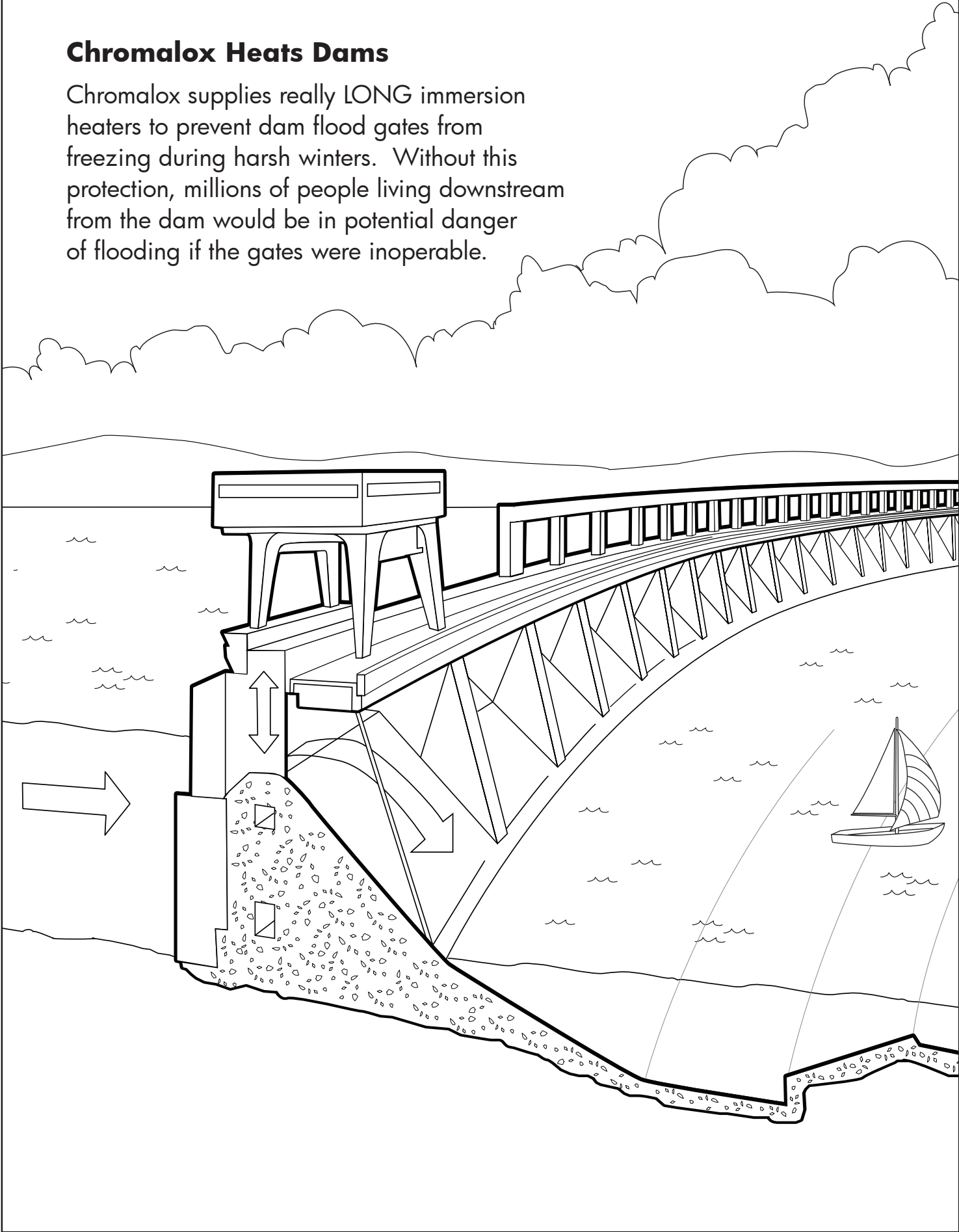
AAEMNTE

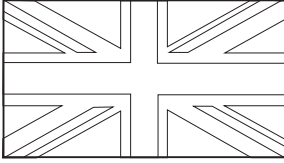
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Solutions on page 31

Chromalox Heats Dams

Chromalox supplies really LONG immersion heaters to prevent dam flood gates from freezing during harsh winters. Without this protection, millions of people living downstream from the dam would be in potential danger of flooding if the gates were inoperable.

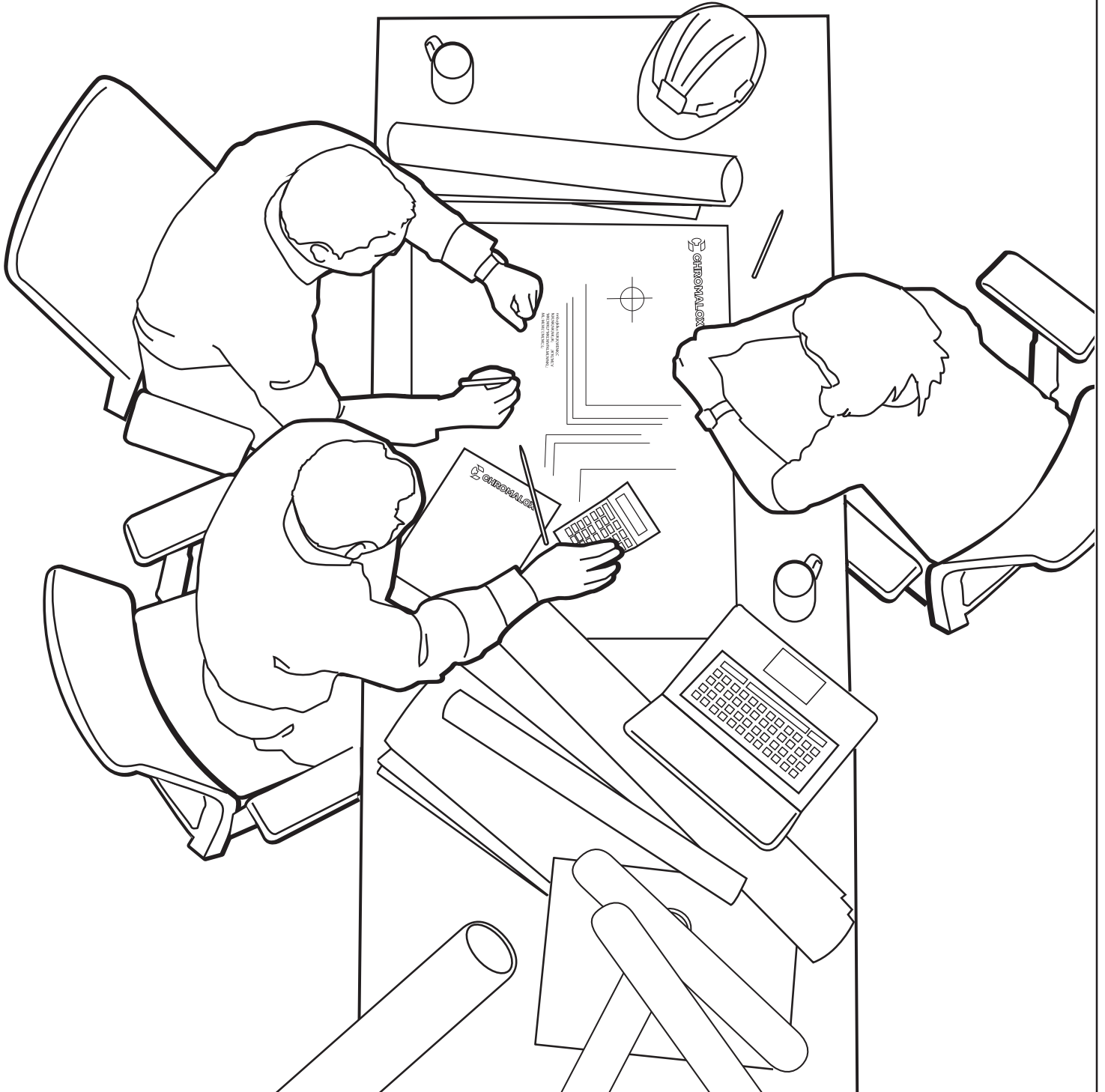




Great Britain

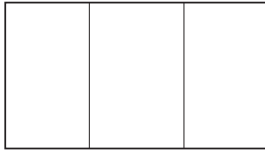
Croydon, Great Britain

In 1987 Chromalox established a world-class engineering presence with the acquisition of Eltron located in England. This expanded global third party approvals and provides valuable engineering services in the European region.



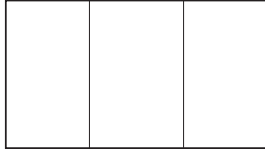
Soissons, France

The Soissons, France plant is a Global Center of Excellence for the manufacture of large flanged heaters, circulation heaters, and integrated systems. A Chromalox sales office and design office are also integral to this facility.



France

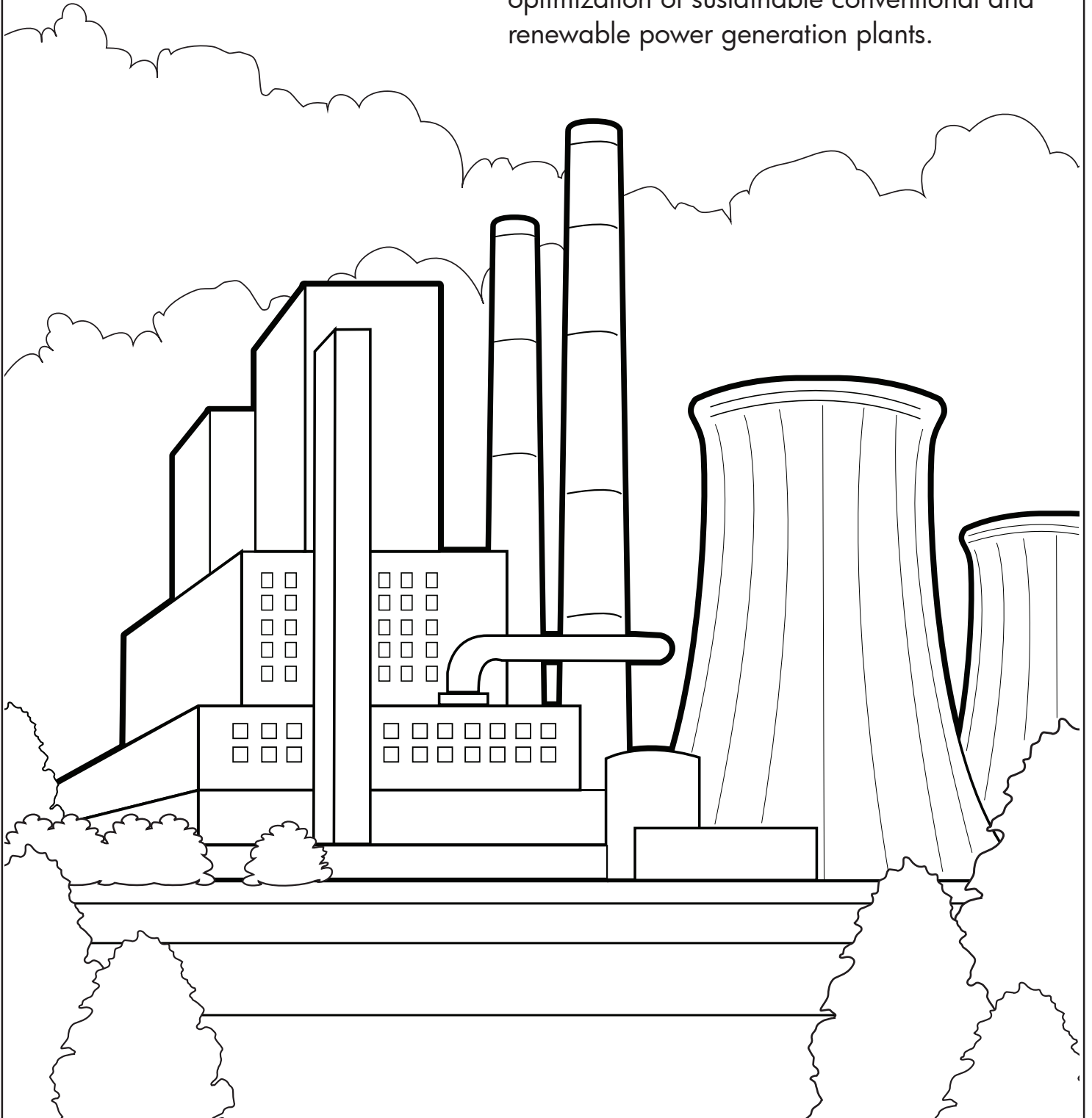


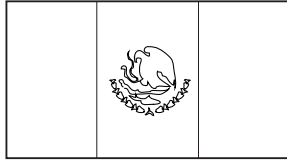


France

Chromalox, France

As the global energy demand increases and government and environmental regulations tighten, Chromalox is the proven performer in providing integrated heat supply and control technologies for the optimization of sustainable conventional and renewable power generation plants.

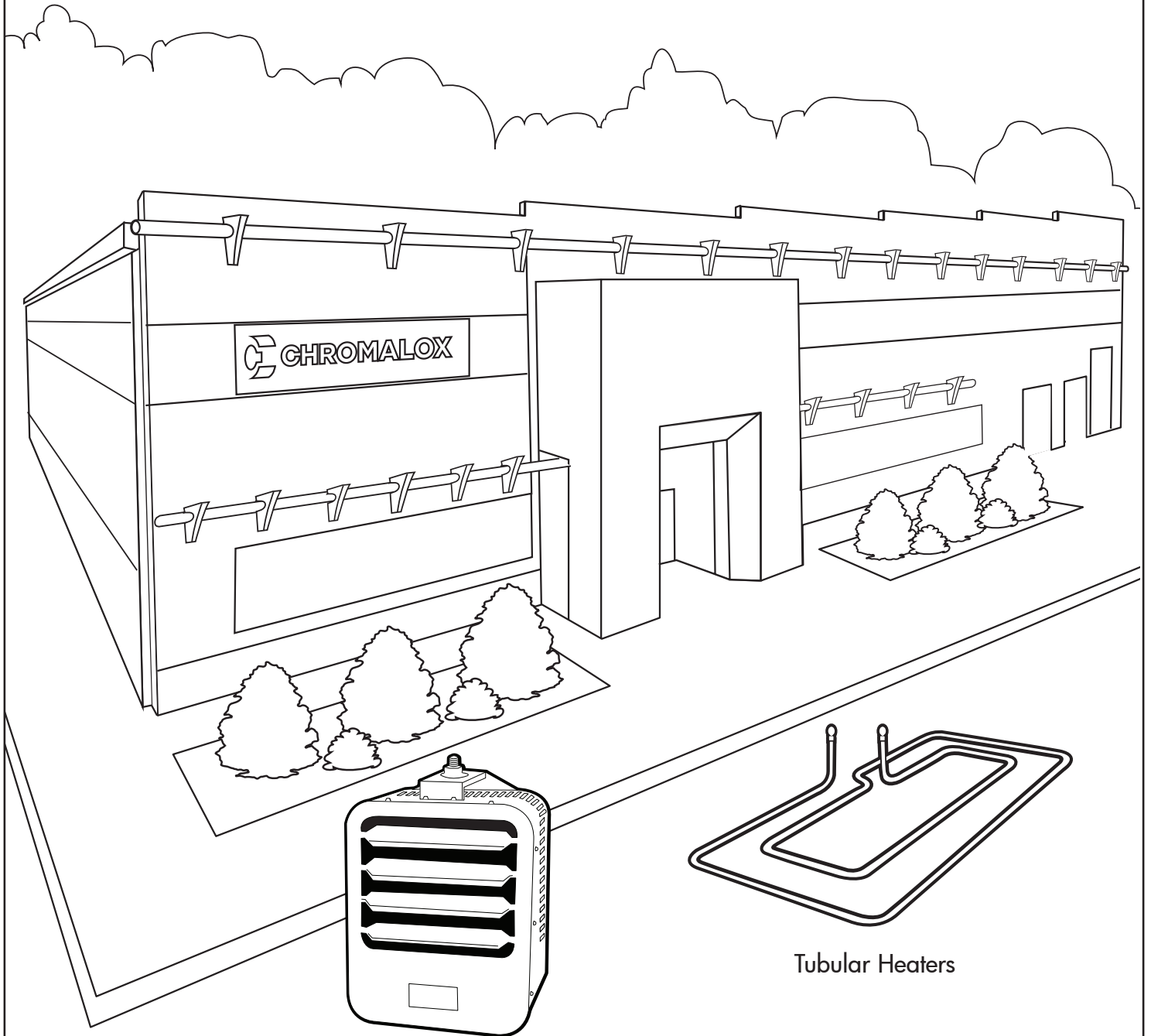




Mexico

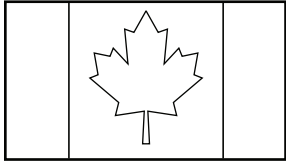
Nuevo Laredo, Mexico

Chromalox started operations at the Nuevo Laredo, Mexico plant in 2000. This facility is a Global Center of Excellence for boilers, immersion heaters, industrial air heaters, strip and ring heaters, mica band heaters, and tubular and cartridge heaters.



Discharge Fan Forced Unit Heater

Tubular Heaters



Canada

Calgary, Canada

Did you know that in November of 2014, ProTrace Engineering Inc. was acquired by Chromalox? ProTrace provides Chromalox with world class Engineering services for Heat Trace Systems.

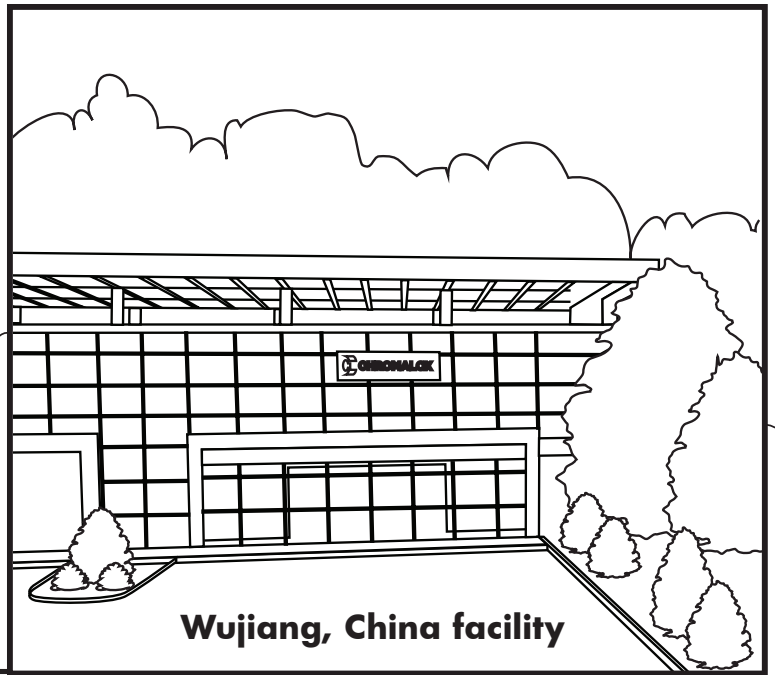




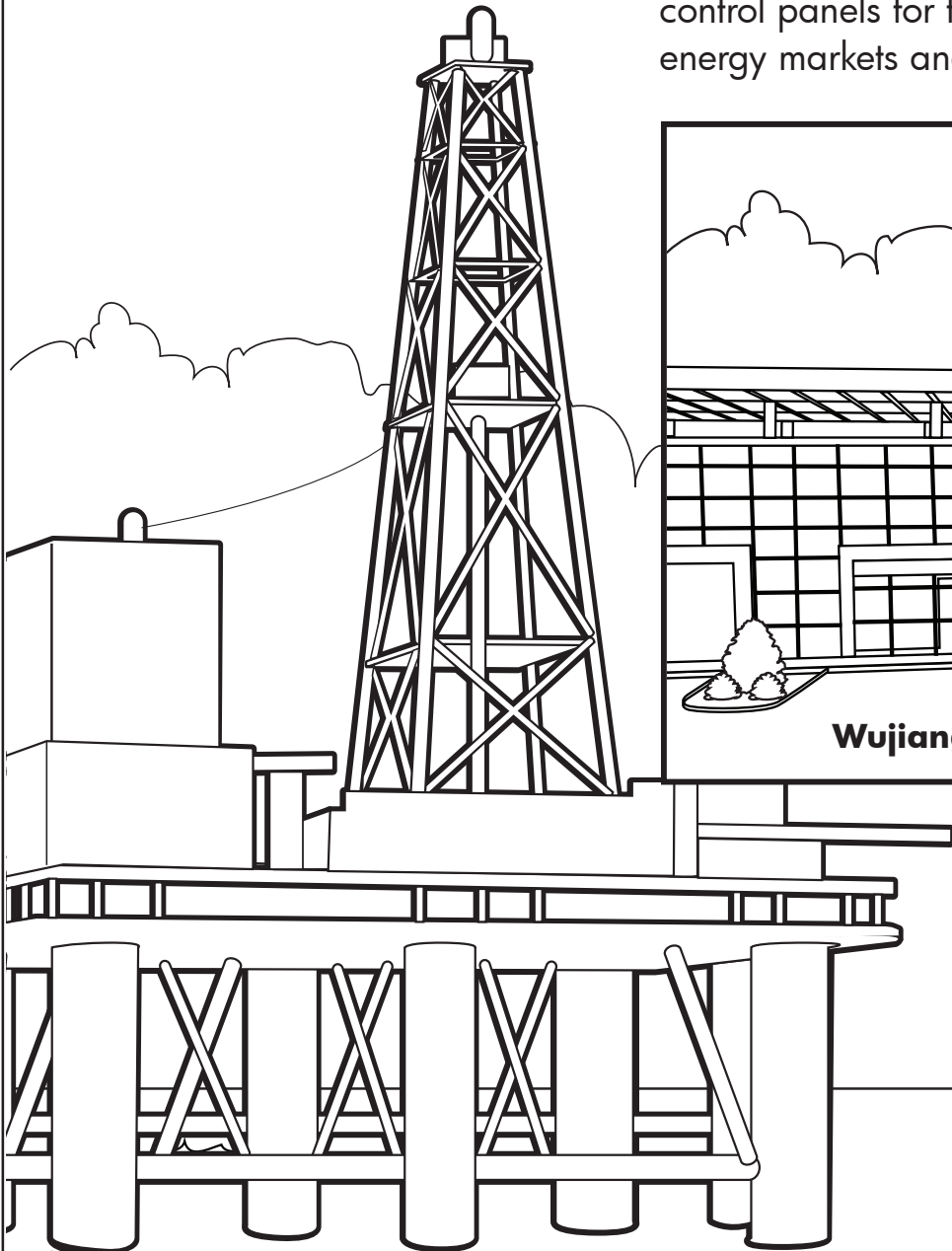
China

Chromalox, China

Chromalox Wujiang facility is critical to our success in the global offshore oil & gas markets. The plant manufactures XtremeDuty unit heaters, heat trace and control panels for this and other important energy markets and applications.



Wujiang, China facility

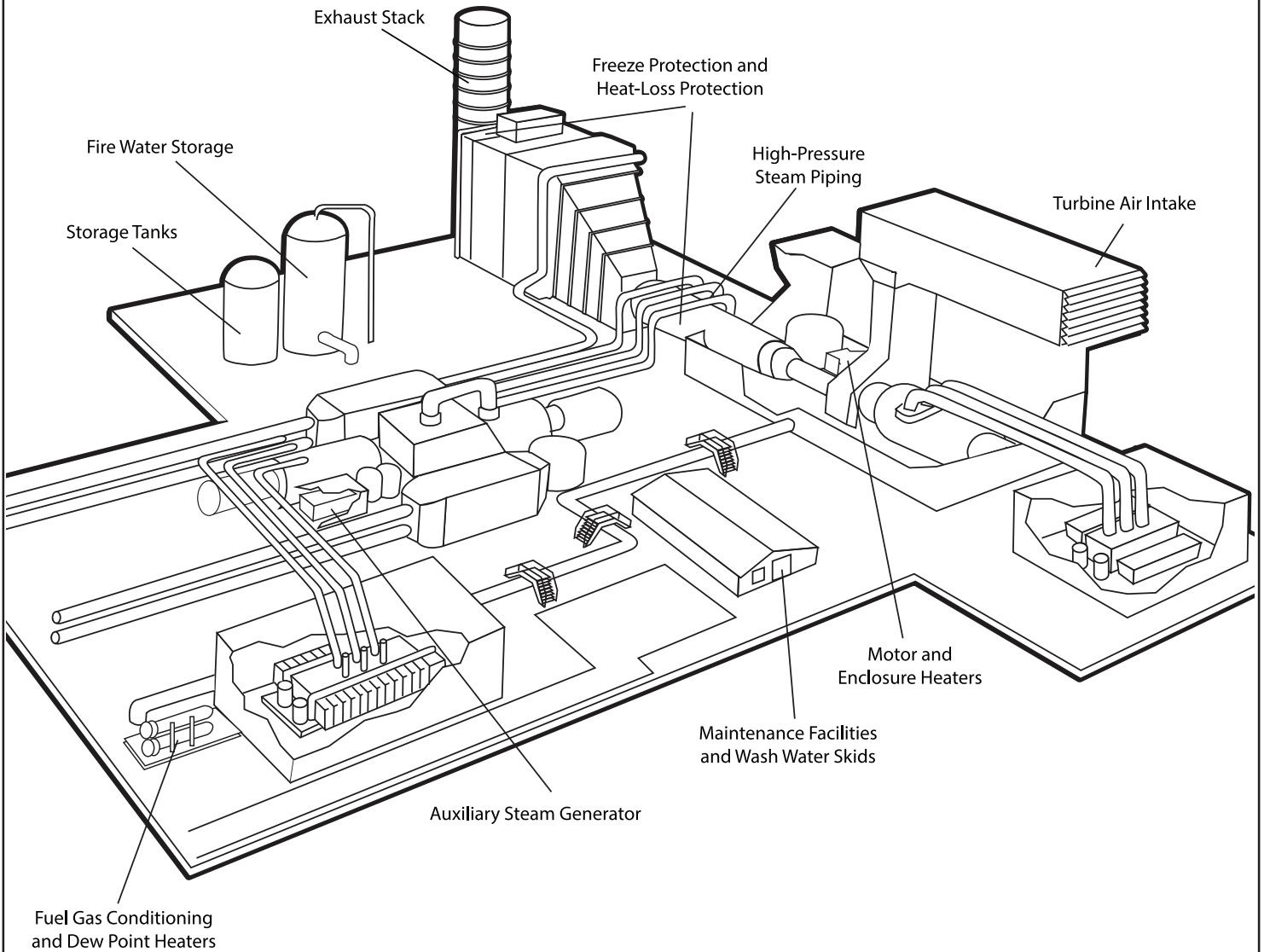




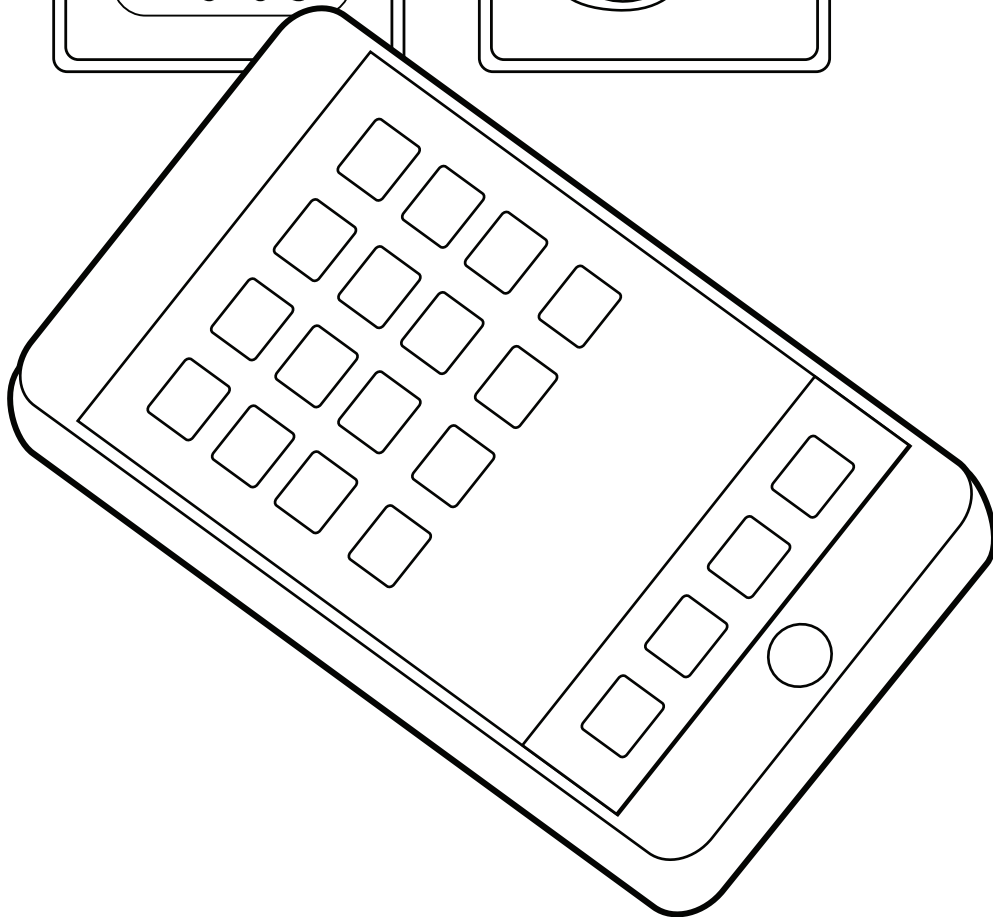
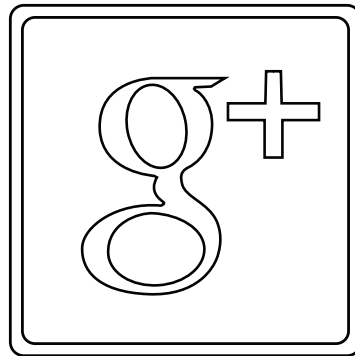
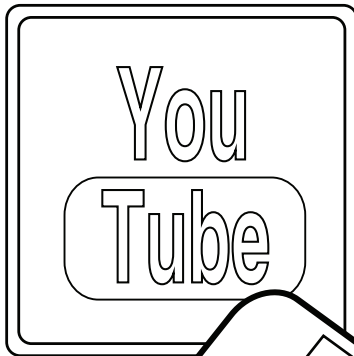
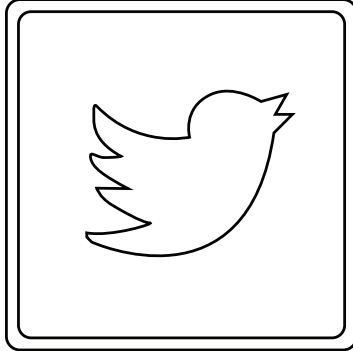
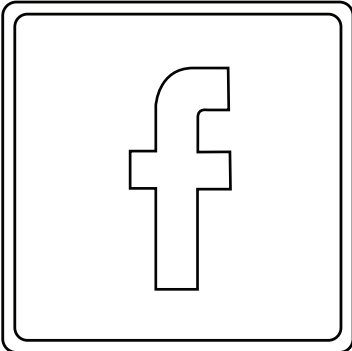
China

Combined Cycle Gas Turbine Plant

Chromalox provides precision-engineered heat and control systems for more alternative fuel processes throughout the world.

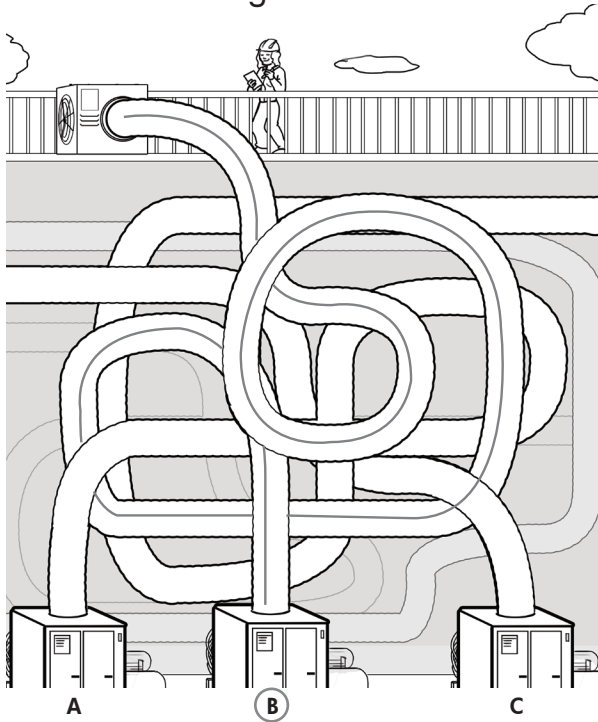


Visit our social media pages!



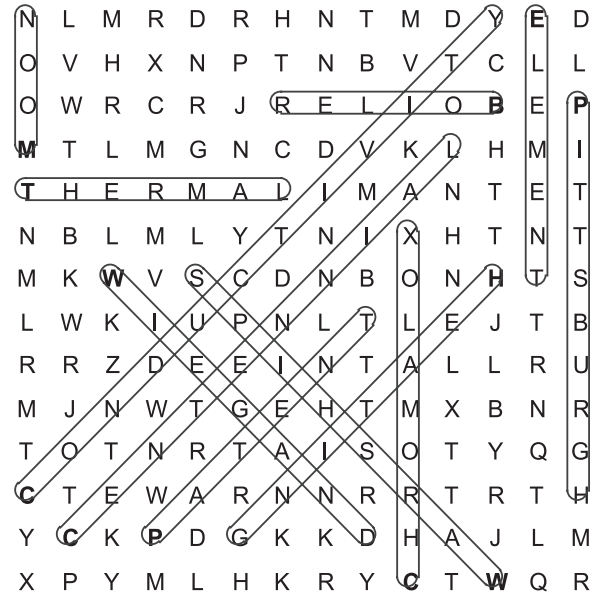
Solution Page

Page 4



Page 15

WORD SEARCH



Unscramble

Page 21

- 1: Streetcar
- 2: Global
- 3: Power
- 4: Alloy
- 5: Hospital
- 6: Nuclear
- 7: History
- 8: Edwin
- 9: Space
- 10: Energy
- 11: Lunar
- 12: Heater
- 13: Waffles
- 14: Manatee

Multiple Choice Test

Page 18

- 1.-B
- 2.-B
- 3.-C
- 4.-B
- 5.-A
- 6.-B

Match the Numbers

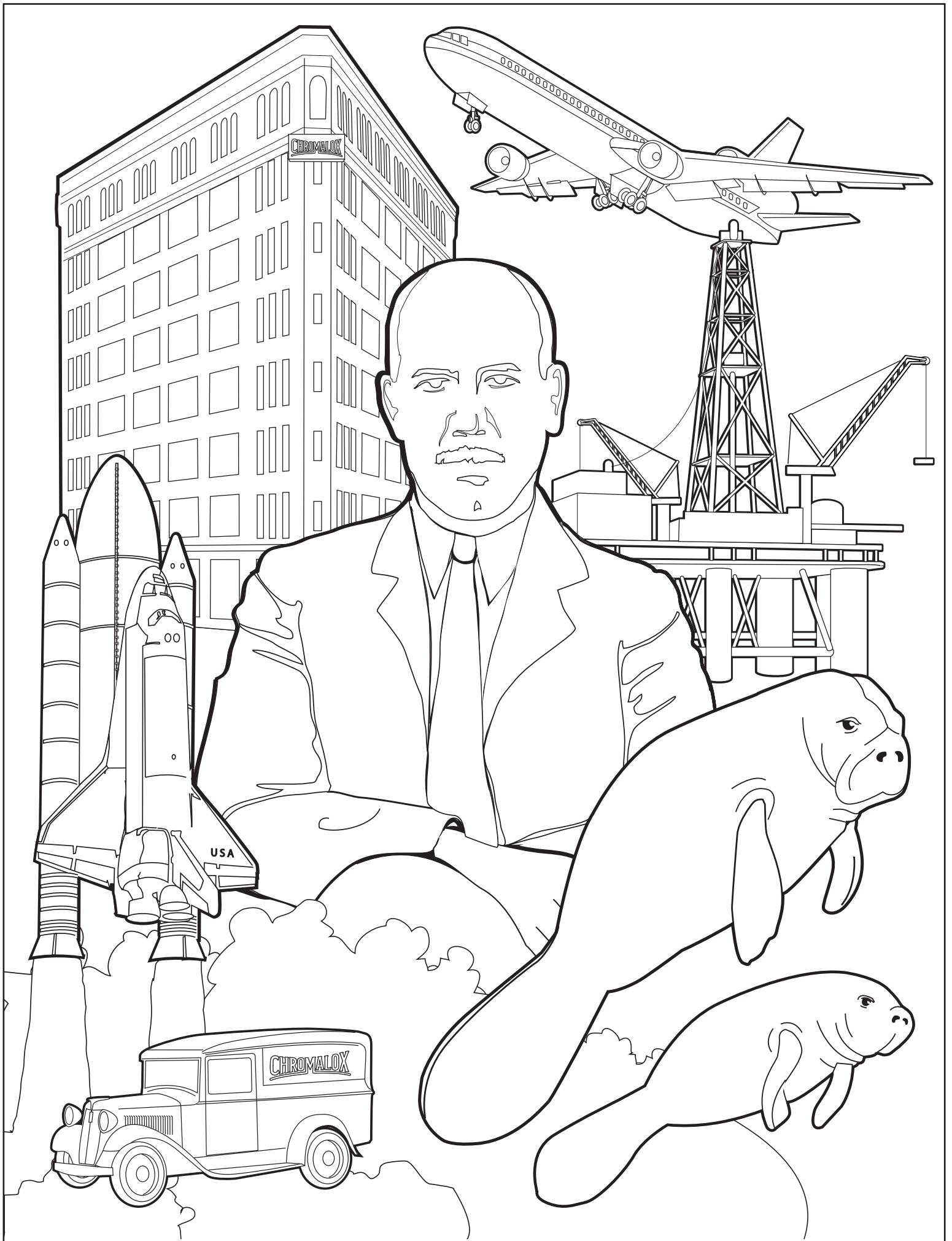
Page 20

- 6 China
- 2 France
- 8 India
- 7 Mexico
- 1 Pennsylvania, USA
- 5 Tennessee, USA
- 4 United Kingdom
- 3 Utah, USA



“To pioneer new thermal technologies and shape the future of industrial heating.”

We invented electric heating technology, created an industry, and pioneered applications in new markets for the past 100 years. We are problem solvers who help our customers by developing new thermal technologies that will improve their operating processes and enhance productivity. Our investment in research and development in new technologies will shape the future of industrial heating as we continue to pioneer a new century of innovation.





Historical Timeline

1915- Edwin L. Wiegand, a self-taught engineer from Pittsburgh, PA, had always shown an intense curiosity in electrical conductivity. In his makeshift laboratory off his family's dining room, Wiegand experimented with ways to encapsulate the fragile and sometimes dangerous "open coil" heat technology of the time in a dielectric. This led to his groundbreaking patent in 1915 of a resistance-heating element embedded in an insulating refractory and enclosed in a metal sheath. On this technology, he founded Chromalox in 1917 and began producing the strip heater for what would become the modern electric clothes iron.

1920's- With about 100 employees, the company moved from downtown Pittsburgh to a new plant in the suburbs (Homewood). As demand increased, Chromalox developed new materials and processing methods.

1930's- During the Great Depression, E.L. Wiegand licensed the brand and technology around the world to generate capital (e.g. Canada).

1940's- WWII creates demand for portable comfort heaters and freeze protection heaters that could be used in the field. Many GI's remember the Chromalox over-the-side heaters for wash water use.

1950's- When nuclear power became popular in the mid-fifties, Chromalox was the first to supply pressurizer heaters for nuclear power plants and nuclear submarines.

1960's- During the space age, Chromalox was the major supplier to the manufacturers of support equipment. Chromalox achieved another "First" when a strip heater landed on the moon. In 1969, the Apollo 11 lunar module used a strip heater in the electronic control box of a fuel triggering device.

1970's- Chromalox expanded into global markets by acquiring two manufacturing facilities, Grimwood in England, and Etirex in France. In 1977, Chromalox Industrial Controls was born with the purchase of Rosemount Temperature Controls in LaVergne, TN.

1980's- Global changing economic conditions opened new markets for Chromalox products.

1990's- Changing economic conditions in the Far East opened new markets for Chromalox products. Additional manufacturing and engineering facilities were obtained with the acquisitions of Bray and Eltron in England. Chromalox became the world's most technologically advanced electric heating equipment producer.

2000's-Present Chromalox continues to expand its international presence with the opening of direct sales offices in India, Thailand, Germany, Singapore, and Dubai. These offices have positioned the company to respond to the growing power generation industries in those regions of the world. Demand for oil and gas accelerators and energy sector continues to expand.

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