

## Searching Out Symmetry

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Symmetry is \_\_\_\_\_.

- (A) uncommon in the natural world
- (B) not a very organized way to build
- (C) found in nature and architecture
- (D) an ancient Roman structure

2. Renaissance architects \_\_\_\_\_.

- (A) re-awakened to the ideas of the past
- (B) did not know about symmetry
- (C) thought Vitruvius was wrong
- (D) used only new ideas in their buildings

3. Do you agree with the author that Renaissance buildings have stood the test of time?

Explain.

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4. If Vitruvius had lived 1,500 years later, what would he have thought about the buildings of the Renaissance?

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5. What idea from the text would you like to read more about? Why does it interest you?

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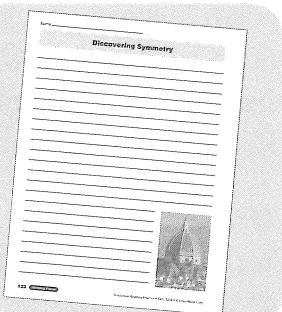


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### **Write About the Topic**

Use the Writing Form to write about what you read.

Write to explain what you discovered about the symmetry in one of the buildings pictured in the text.



# Elijah McCoy, Inventor

**Level 1** ■

## Words to Know list, Reading Selection, and Reading Comprehension questions

**Elijah McCoy**

Fill in the circle by the correct answer.

**Elijah McCoy**

As a young boy, Elijah McCoy wanted to invent something that would help people. He had many ideas, but he never had time to work on them. When he grew up to be an engineer, in his many spare time, he worked on his inventions. One of his first inventions was a device that made steam engines run more efficiently. This invention became so popular that many African Americans had five copies of it.

**Early Life**

Elijah McCoy was born in 1843 in Colchester, Ontario, Canada. His parents were freed from slavery. They moved to Canada to escape the Underground Railroad. In 1860, he moved to Detroit, Michigan, where he found work as a livery stable owner. He was only 17 years old when he was given up to Michigan in the family of a white man.

**Making the Train Run Smooth**

When Elijah McCoy was 20 years old, his parents sent him to Scotland to study engineering. When he returned, Elijah McCoy began working on African American engineers. He was one of the first African American engineers to receive a patent. He accepted a job with the Locomotive Works in Detroit. He worked there for 10 years. He invented a device that would keep oil from leaking out of the engine. It was called a "lubricator." McCoy's invention was so good that it became very popular. In 1902, when McCoy began to think of a better way to do things, while the train was moving, he invented a device that would add oil to the engine while the train was moving. This device was called a "lubricating cup." The people who used the real McCoy device had to invent lubricators before they could ask for the "real McCoy."

According to legend, when a customer asked for the "real McCoy," he was referring to Elijah McCoy. Had many successful inventions for nearly 40 years. He was also a livery stable owner with his wife, Mary McCoy. Elijah McCoy died in 1929 at the age of 86. He is buried in Woodlawn Cemetery in Detroit. In 1973, the city of Detroit honored Elijah McCoy by naming a street after him. The street is named Elijah McCoy Street. It is located near the Michigan Memorial Plaza in Detroit, Michigan. He died in 1929 at the age of 86. Elijah McCoy was a great engineer. He lived a long life in which he used what people speak about something of the highest quality—the real McCoy—the real McCoy.

Want to Know  
**Elijah McCoy**

inventor  
Underground Railroad  
mechanical engineering  
certified  
other lubricants  
routes  
device  
inventions  
politics  
lubricating  
household  
caliperlike  
quality

National Inventor Hall of Fame

134 Elijah McCoy, Inventor II

Elijah McCoy, Inventor II

Level 2

## Words to Know list, Reading Selection, and Reading Comprehension questions

**Level 3** ■ ■ ■

## Words to Know list, Reading Selection, and Reading Comprehension questions

## **Assemble the Unit**

Reproduce and distribute one copy for each student:

- Visual Literacy page: The Real McCoy, page 131
  - Level 1, 2, or 3 Reading Selection and Reading Comprehension page and the corresponding Words to Know list
  - Graphic Organizer of your choosing, provided on pages 180–186
  - Writing Form: Elijah McCoy, page 132

## **Introduce the Topic**

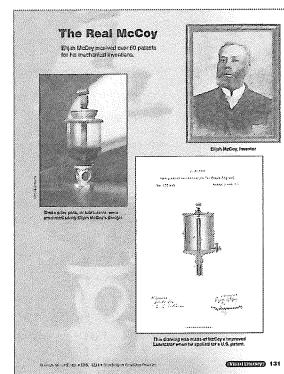
Discuss the diagram and pictures on page 131. Students will read about Elijah McCoy's inventions. Explain that when inventors apply for a patent to protect their invention, they include drawings and descriptions of the invention. Tell students that by law, only the inventor may sell a patented invention.

## **Read and Respond**

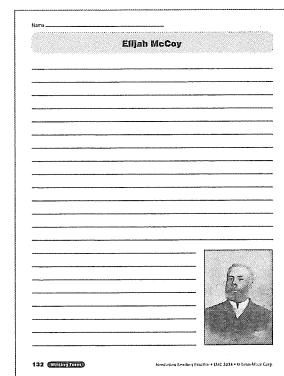
Form leveled groups and review the Words to Know lists with each group of students. Instruct each group to read their selection individually, in pairs, or as a group. Have students complete the Reading Comprehension page for their selection.

### **Write About the Topic**

Read aloud the leveled writing prompt for each group. Tell students to use the Graphic Organizer to plan their writing. Direct students to use their Writing Form to respond to their prompt.



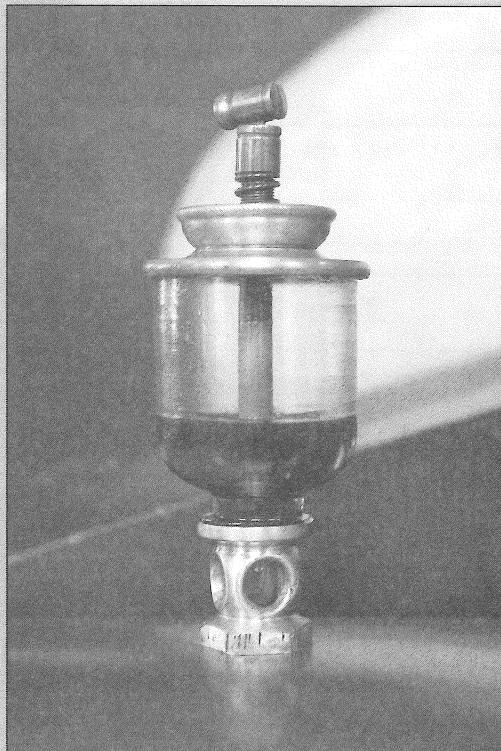
## Visual Literacy



## Writing Form

# The Real McCoy

Elijah McCoy received over 50 patents for his mechanical inventions.

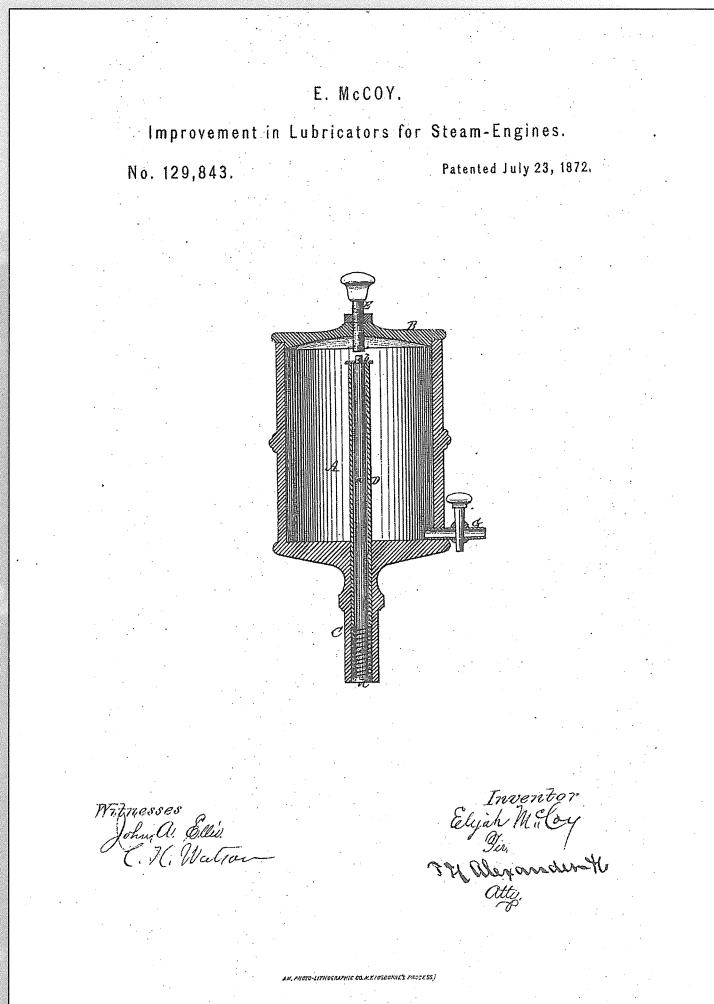


©Frank Vincentz

These oiler pots, or lubricators, were produced using Elijah McCoy's design.

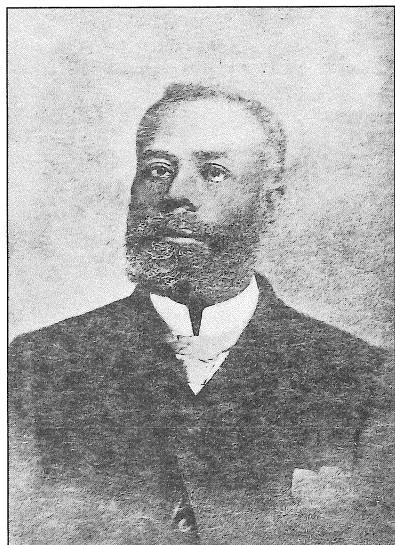


Elijah McCoy, Inventor



This drawing was made of McCoy's Improved Lubricator when he applied for a U.S. patent.

# Elijah McCoy



## **Words to Know**

### **Elijah McCoy**

inventor

Underground Railroad

mechanical

engineering

certified

oiler

lubricate

routes

device

inventions

patents

lubrication

household

collapsible

quality

## **Words to Know**

### **McCoy's Invention**

invention

probably

according

Underground

Railroad

mechanical

engineering

certified

lubricate

routes

efficient

automatically

device

patents

collapsible

quality

## **Words to Know**

### **The Real McCoy**

expression

invention

Underground Railroad

eventually

mechanical

engineering

certified

discrimination

lubricate

route

automatic

patent

legend

quality

collapsible

Elijah McCoy, Inventor ■■

Elijah McCoy, Inventor ■■■

Elijah McCoy, Inventor ■■■■



# Elijah McCoy

As a young boy, Elijah McCoy wanted to know how machines worked. It is easy to understand how a curious and clever boy would grow up to be an inventor. Even so, his story is special. He became a successful inventor in a time when most African Americans had few opportunities.

## Early Life

Elijah McCoy was born in 1843 in Colchester, Ontario, Canada. His parents had escaped from slavery in Kentucky. They fled to Canada on the Underground Railroad. It was before the Civil War had put an end to slavery in the United States. But Elijah was born free in Canada. Elijah and his family moved back to the U.S. when he was five years old. He grew up in Michigan in a family of 12 children.



Elijah McCoy, Inventor

## Keeping the Trains Running

When Elijah McCoy was 15 years old, his parents sent him to Scotland to learn mechanical engineering. When he returned, Elijah McCoy was a certified mechanical engineer. However, he found that no one would hire an African American engineer. So McCoy accepted a job working for the Michigan Central Railroad as an oiler. His job was to lubricate the moving parts of trains to keep them running. Trains had to be stopped again and again along their routes to be oiled. McCoy began to think of a better way to keep the trains lubricated. In 1872, he invented a device that would keep adding oil while the train moved. Other people tried to invent lubricators before and after McCoy, but his were the best. According to one story, railroad engineers would ask for "the real McCoy."

Elijah McCoy had many successful inventions for trains and ships. He was able to leave his job with the railroad. He received over 50 patents for his mechanical inventions. Most of them had to do with lubrication. He also invented useful household items such as a lawn sprinkler and a collapsible ironing board. Later in life, he founded his own company, the Elijah McCoy Manufacturing Company. It manufactured McCoy lubricators. Elijah McCoy lived to the age of 86. He died in 1929 and was buried at Detroit Memorial Park in Warren, Michigan. Even today, his name is used when people speak about something of the highest quality—the real thing—the real McCoy.

## Elijah McCoy

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. A patent is a license that keeps others from copying your \_\_\_\_\_.

- (A) route
- (B) train
- (C) invention
- (D) quality

2. A lubricator is used on \_\_\_\_\_.

- (A) ironing boards
- (B) moving train parts
- (C) lawn sprinklers
- (D) a patent

3. What talents do you think Elijah McCoy possessed in order to be a successful inventor?
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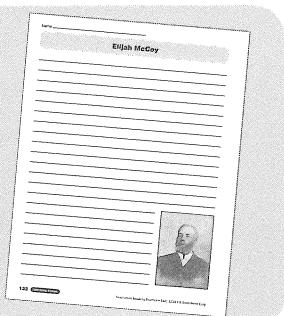
4. Explain how the saying “the real McCoy” may have started with an invention.
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5. How do you know that Elijah McCoy was a successful inventor?
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### Write About the Topic

Use the Writing Form to write about what you read.

Imagine it is 1929. Write a newspaper article honoring the life and work of Elijah McCoy.



# McCoy's Invention

You have probably heard people use the saying "that's the real McCoy" when they mean something is "the real thing." Where did that saying come from? And who is McCoy? According to one story, the saying described an invention by the African American inventor Elijah McCoy.

## Early Life

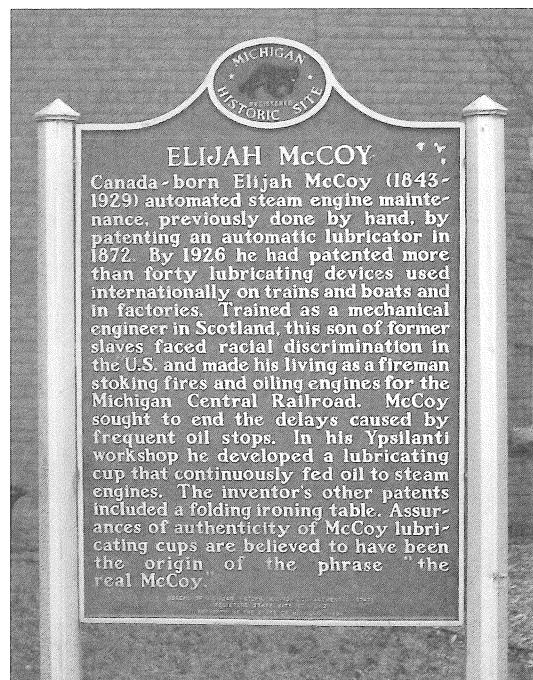
Elijah McCoy's parents escaped from slavery in Kentucky. They fled to Canada on the Underground Railroad. Elijah McCoy was born in 1843 in Colchester, Ontario, Canada. He was one of twelve children. Elijah was born before the Civil War put an end to slavery in the U.S. However, he was born free because Canada did not allow slavery. Elijah's family moved back to the U.S. when he was five years old.

Elijah McCoy grew up in Michigan, but when he turned 15 he was sent to Scotland to learn mechanical engineering. When he returned home to Michigan, Elijah McCoy was a certified mechanical engineer. He found that no one would hire him as an engineer because he was African American. So McCoy took a job working for the Michigan Central Railroad as an oiler.

## Working Life

McCoy's job was to lubricate the moving parts of trains to keep them running. Trains had to be stopped again and again along their routes to be oiled. McCoy thought it would be more efficient if the oil could be added automatically while the trains were moving. In 1872, he invented a device that would do just that. Other people invented lubricators before and after McCoy, but his were the best. Railroad engineers would ask for "the real McCoy."

Elijah McCoy had many successful inventions. In fact, he received more than 50 patents for his mechanical inventions. Besides lubricators for trains and ships, he also invented a lawn sprinkler and a collapsible ironing board. His inventions were so successful that he left his job with the railroad. Later in life, he founded his own company to manufacture McCoy lubricators. Elijah McCoy lived to the age of 86. He died in 1929 and is buried at Detroit Memorial Park in Warren, Michigan. Even today, people use his name when they speak about something of the best quality. "The real McCoy" means "the real thing."



Elijah McCoy's workshop in Ypsilanti, Michigan, is a historical site today.

## McCoy's Invention

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. The job of an oiler was to \_\_\_\_\_.

- (A) move trains
- (B) certify mechanics
- (C) lubricate moving parts
- (D) invent devices

2. A patent is a license that keeps others from copying your \_\_\_\_\_.

- (A) quality
- (B) route
- (C) engineer
- (D) invention

3. How did it happen that Elijah McCoy came to invent a lubricator?
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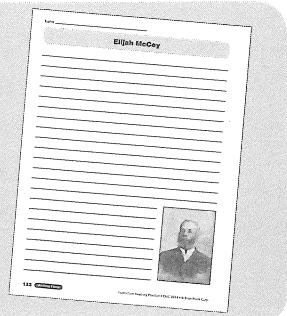
4. How would you justify the statement that Elijah McCoy was a successful inventor?
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5. What part did Canada and Scotland play in McCoy's life?
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### Write About the Topic

Use the Writing Form to write about what you read.

Imagine you are there when Elijah McCoy is admitted to the Inventor's Hall of Fame. Write your speech introducing him.



# The Real McCoy

Have you ever heard someone use the expression “the real McCoy”? The words of the expression don’t give clues about its meaning. However, it means “the real thing.” Some people think the expression was used to describe a useful invention by a man named Elijah McCoy.

## Who Was McCoy?

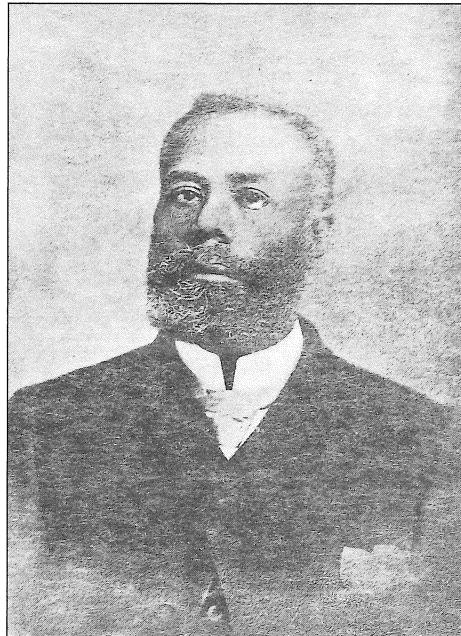
Elijah McCoy was born in 1843 in Colchester, Ontario, Canada. His parents had escaped from slavery in Kentucky. They fled to Canada on the Underground Railroad. The McCoys started a family that grew to include twelve children. Their son Elijah was born many years before the Civil War put an end to slavery in the United States. But he was born free in Canada. Eventually, the family moved back to the United States, and Elijah McCoy grew up in Michigan.

## Keeping the Trains Running

As a young boy Elijah McCoy was clever and curious. He was very interested in mechanical things. His parents sent him to Scotland to learn mechanical engineering when he was 15 years old. When he returned to Michigan, Elijah McCoy was a certified mechanical engineer. However, there was discrimination against African Americans, and he was unable to find a job as an engineer. He accepted a job working for the Michigan Central Railroad as an oiler. His job was to lubricate the moving parts of trains. In those days, a train had to be stopped again and again along the route so its moving parts could be oiled. This kept the train running, but it wasn’t very efficient.

McCoy began to think of a way to keep train parts lubricated. In 1872, he invented an automatic lubricator and received a patent for it. As the legend goes, other people before and after McCoy developed automatic lubricators. But railway engineers trusted and asked for “the real McCoy” because of its high quality.

Because his inventions were so successful, McCoy was able to leave his job with the railroad. Elijah McCoy continued inventing and received over 50 patents for his mechanical inventions. Most of them had to do with lubrication. He also invented useful household items such as a lawn sprinkler and a collapsible ironing board. In 1920, he founded his own company, the Elijah McCoy Manufacturing Company, to make McCoy lubricators. Elijah McCoy lived to the age of 86. He died in 1929 and was buried at Detroit Memorial Park in Warren, Michigan. Today, his name is still used to mean something of the highest quality, or “the real thing.”



Elijah McCoy, Inventor