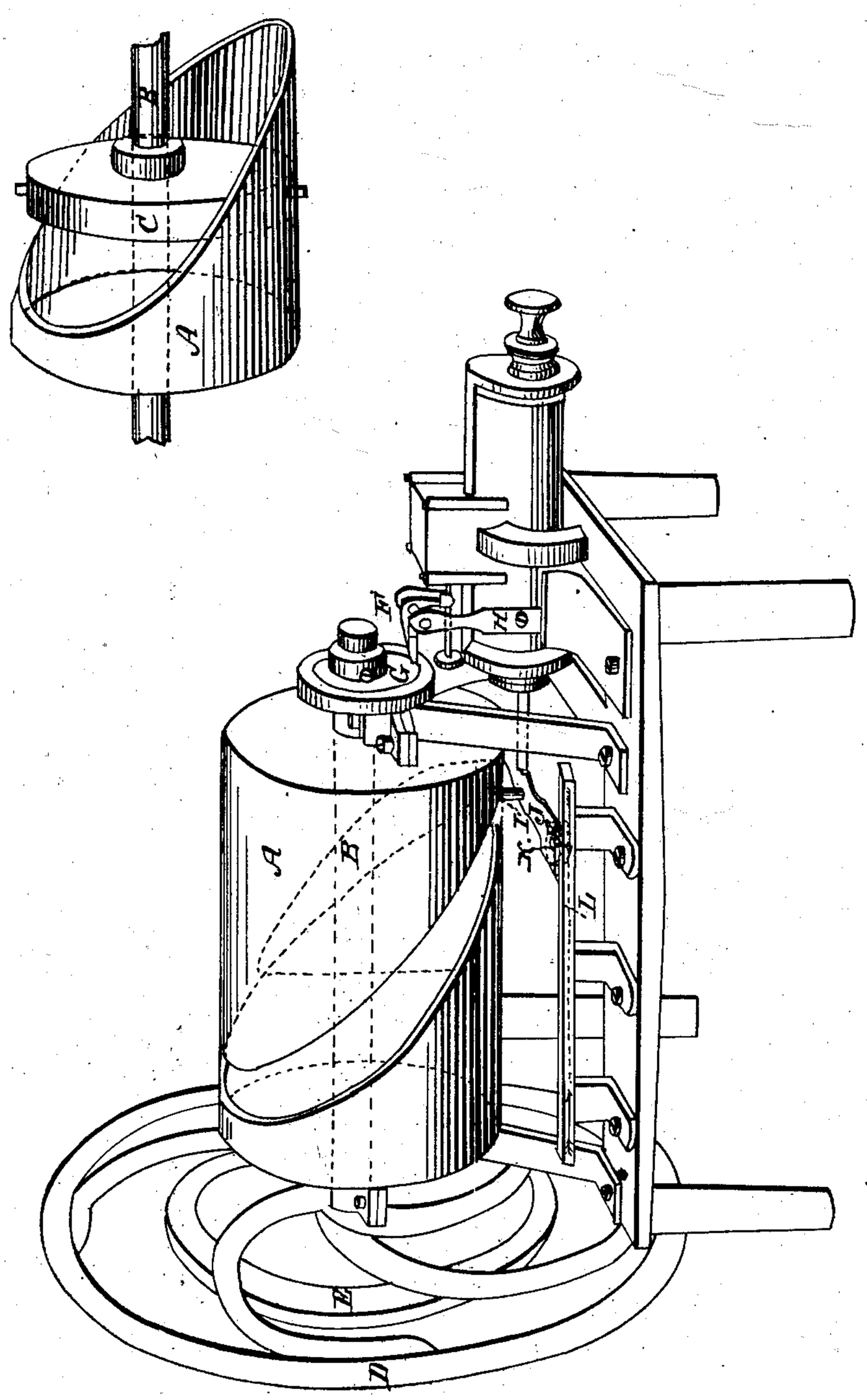
The specification of this patent
is not in print.

S. Graham,

Converting Motion.

No. 701. Patented Apr. 21, 1838.



UNITED STATES PATENT OFFICE.

SETH GRAHAM, OF ROXBURY, MASSACHUSETTS.

STEAM-ENGINE.

Specification of Letters Patent No. 701, dated April 21, 1838.

To all whom it may concern:

Be it known that I, SETH GRAHAM, of Roxbury, in the county of Norfolk and Commonwealth of Massachusetts, have invented a new and Improved Mode of Using Steam-Power; and I do hereby declare that the following is a full and exact description of the same.

The nature of my invention consists in providing steam engines with spiral cylinders instead of cranks as commonly used, and also in the use of an eccentric wheel, provided with an appendage called an elbow and a valve rod, so constructed as to cause the valves of the steam cylinder to be regularly opened and closed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation. I construct my steam cylinder in the usual manner with the common appendages of a piston rod and valves. I place it in a horizontal position upon a suitable foundation. Across the end of the piston rod is fixed a bar of iron, or other metal, called the cross head which is represented by the part of the drawing hereto annexed, marked *y*. This is fitted to a framework, called the rails, represented by the part of the drawing hereto annexed, marked L. Friction rollers or cheeks are placed in each end of the crosshead so as to slide back and forward upon the rails, or parallel rods with ease. The rods are represented by the part of the drawing marked K. To the center of the crosshead is attached, by a pin, a roller, represented by the part of the drawing marked I. This roller is fitted to move in the groove in the spiral cylinder. I construct my spiral cylinder of metal, in two parts, so shaped that when they are put upon the shaft they will have a spiral groove or opening on both sides of the cylinder and extending from near one end to the other, corresponding with the stroke of the piston. The angle of inclination of these grooves, from the axis of the cylinder, should be forty five degrees. I fix the cylinder firmly upon a shaft of iron, or other metal, called the main shaft. The cylinder is represented by the part of the drawing marked A, and the main shaft by that marked B. At one end of the shaft are placed the fly wheel and the pulley, represented by the parts of the drawing marked D and E. At the other end of the shaft is fixed the eccentric, represented by the part of the drawing marked F. This is a solid wheel of metal with grooves, running spirally around upon the side of it. The main shaft, with the cylinder, fly wheel, pulley and eccentric upon it, is placed directly over the rails and crosshead, so as to admit the roller upon the crosshead into the groove in the cylinder, and also to bring the eccentric over the steam cylinder. I prepare a crooked piece of metal called the elbow, to which is attached a rod, called the valve rod. They are represented by the part of the drawing marked G. The elbow is supported upon a pivot which passes through two pieces of metal called the braces. The braces are represented by the part of the drawing marked H. One end of the elbow is fitted into the groove in the eccentric, and the other has a rod attached to it, which connects it with the valves of the steam cylinder. As the piston rod is forced out by the power of the steam, the roller upon the crosshead, which is fitted to the groove in the spiral cylinder, is driven along with the piston far enough to turn the cylinder one half way around. Then the steam forces the rod back again, which brings back the crosshead, and the roller in the grooves, and turns the cylinder the other half of the way around, making in the whole a complete revolution. By this alternate motion given to the piston rod by the steam, the spiral cylinder with all the wheels upon it, is kept rapidly revolving. At the same time the end of the elbow, which is fitted into the grooves upon the eccentric, is moved up and down, and the other end with corresponding motion by means of the valve rod, causes the valves of the steam cylinder to be regularly opened and closed.

What I claim as my invention and desire to secure by Letters Patent, is—

The above described mode of operating the valves in combination with the spiral cylinder constructed and operating substantially in the manner above described.

SETH GRAHAM.

Witnesses:

S. LELAND,

JOHN C. HOBBS.