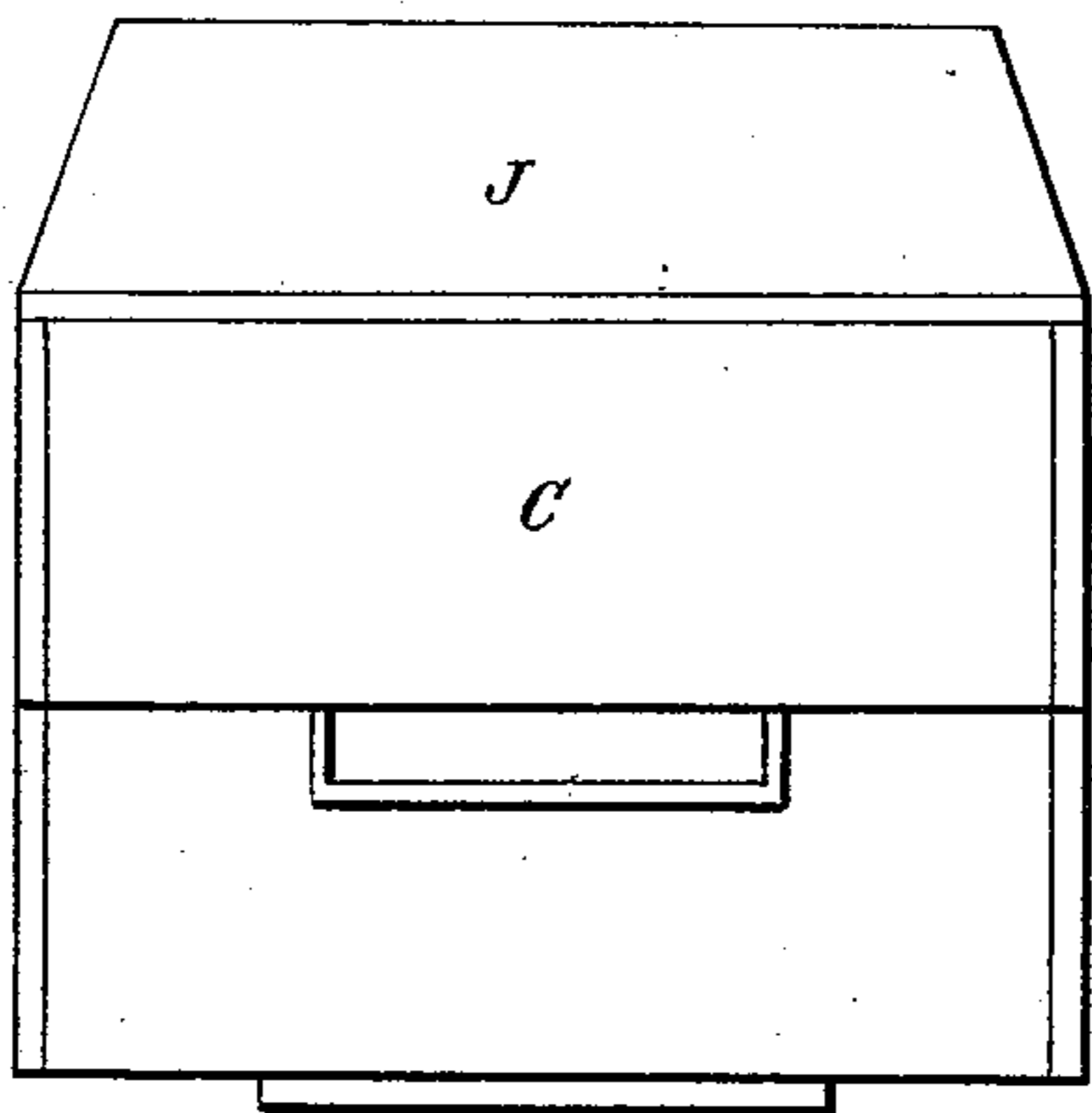
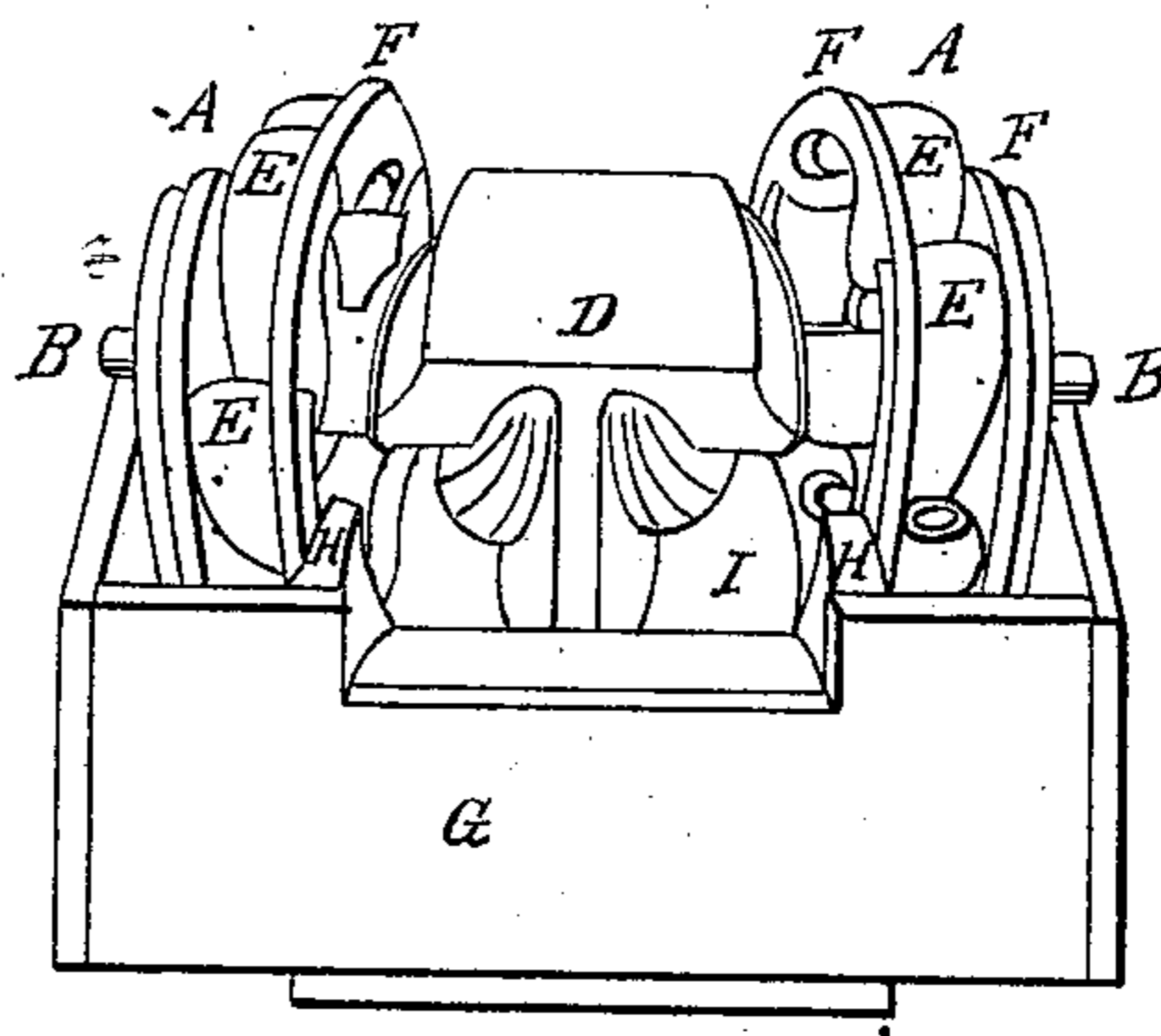


*W. Hatfield,*  
*Water Wheel,*  
*N<sup>o</sup> 1,053.      Patented Dec. 31, 1838.*

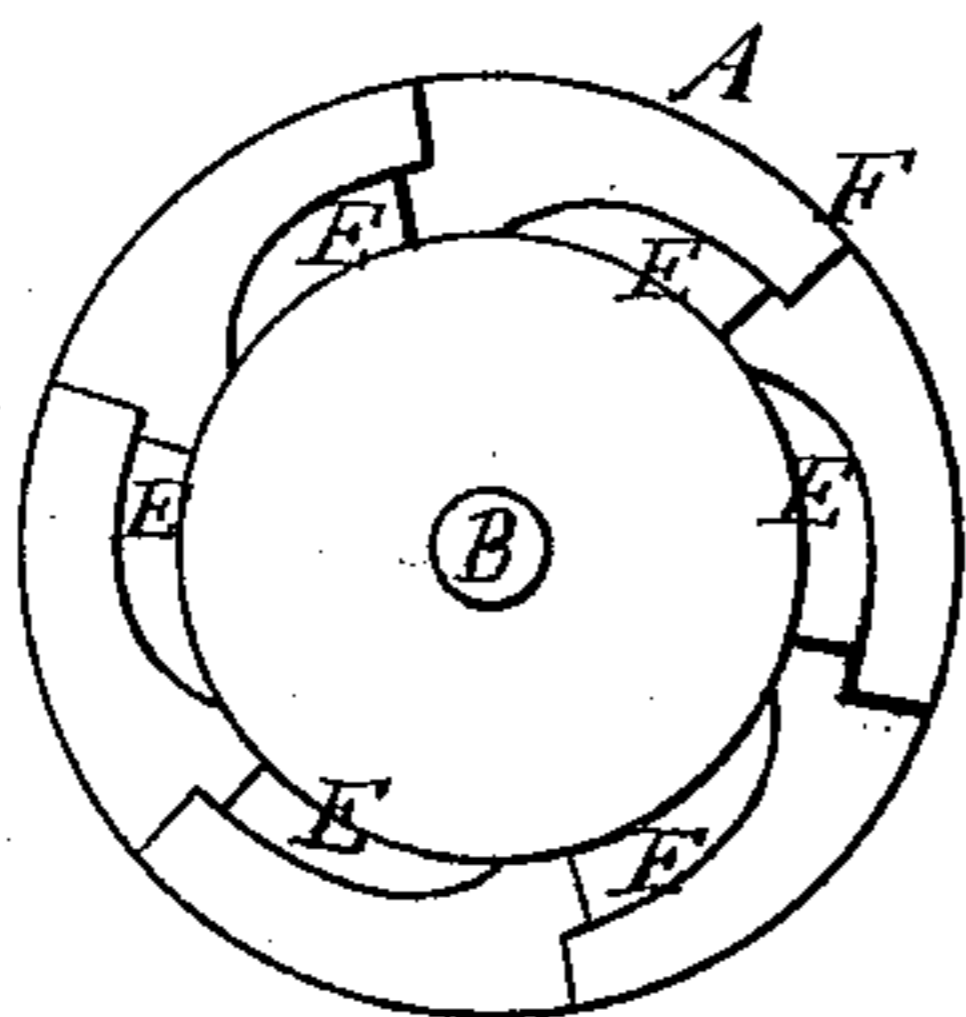
*Fig. 1.*



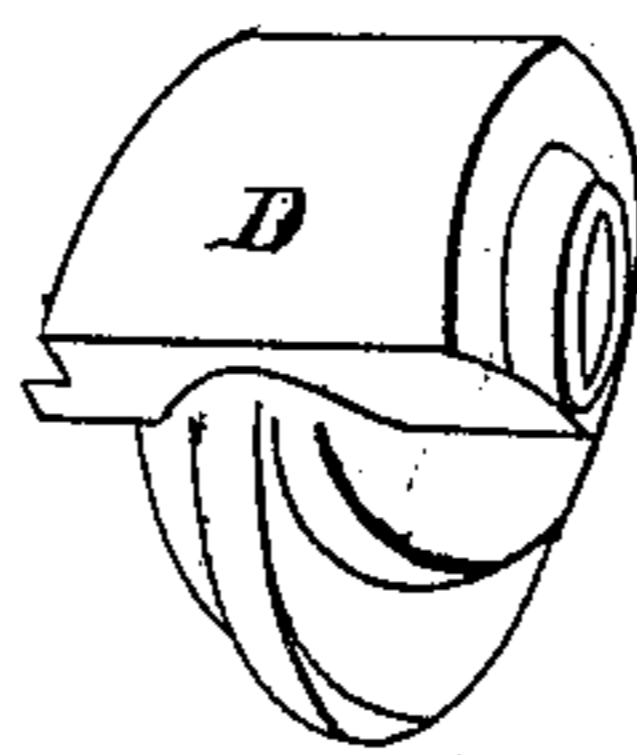
*Fig. 2.*



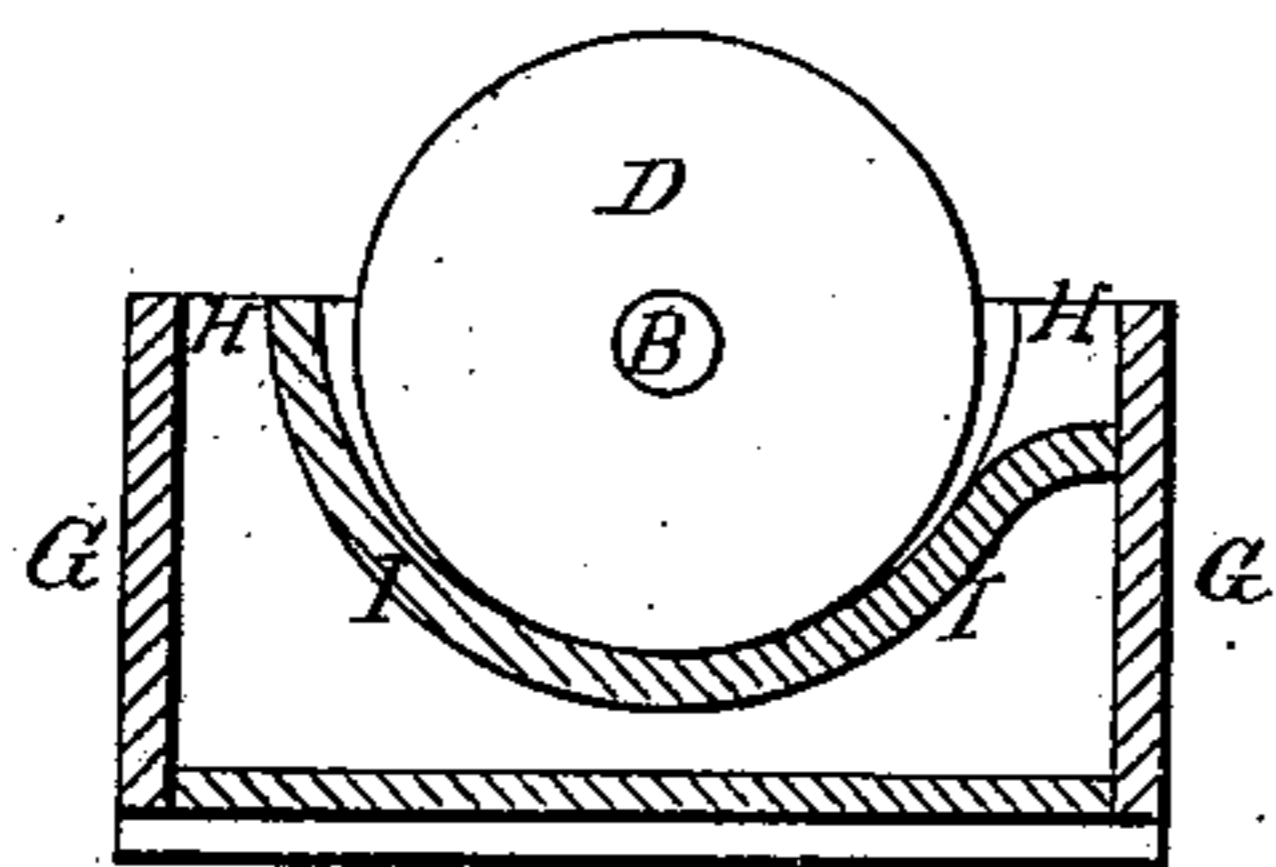
*Fig. 3.*



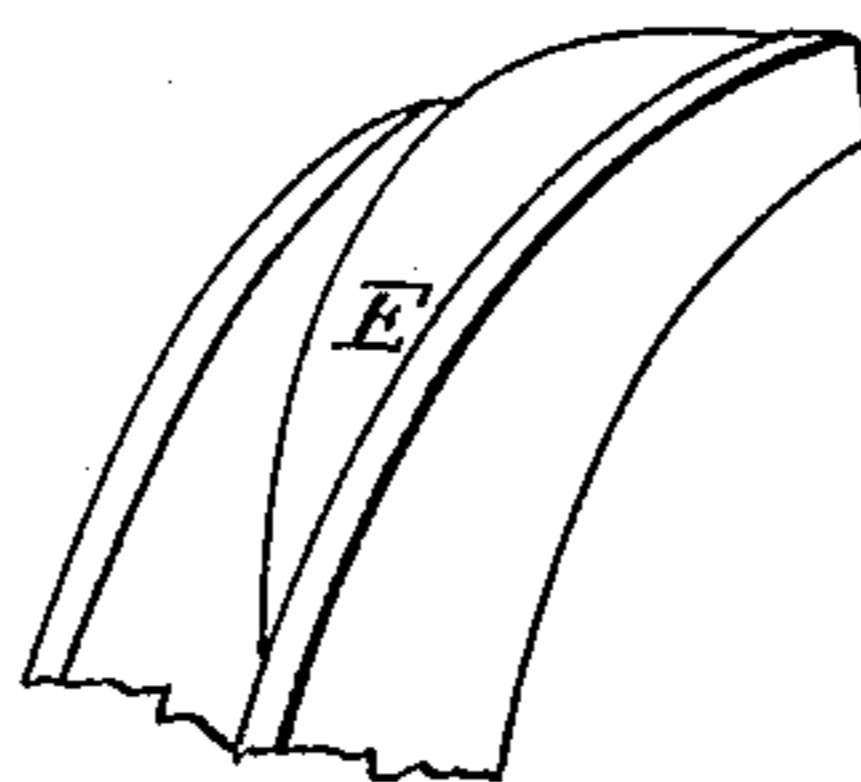
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



# UNITED STATES PATENT OFFICE.

WILLIAM HATFIELD, OF ZANESVILLE, OHIO.

## WATER-WHEEL.

Specification of Letters Patent No. 1,053, dated December 31, 1838.

*To all whom it may concern:*

Be it known that I, WILLIAM HATFIELD, of Zanesville, in the county of Muskingum and State of Ohio, have invented a new and useful Improvement in Parker's Percussion and Reaction Water-Wheel, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

10 The main feature of this improvement consists in the peculiar shape of the buckets of the wheels and the arrangement of a double scroll for directing the water upon said buckets in such a manner both above and below the axis of the shaft as to produce the greatest effect with the least quantity of water.

20 The wheels A, A, are arranged in pairs on a horizontal shaft B, lying across the boxing of the mill and covered by the wheel chamber C. Between each pair of wheels is arranged a double spiral scroll block D for directing the water on the buckets to the right and left as well as above and below the shaft at the same time. Each wheel is composed of a round solid head fastened on the shaft near the end thereof, having a curved rim around the peripheries of said heads divided into equal spaces or sections each of which containing a bucket E of the required shape, which is that of a section of an oval, the convexity being on the outside and the concavity on the inside. It very nearly resembles the bowl of a table spoon with the handle and part of the large end cut off. The wheel when made of wood is strengthened by bands of iron F, around the peripheries or edges and across the ends of the buckets. Both wheels are made alike and are fastened on the horizontal shaft in a vertical position with their open sides toward the center or toward the scroll.

The double spiral scroll block D, bears some resemblance to two volutes brought together and secured in that position. The drawing Figure 4 illustrates fully the peculiar form of said double scroll. The boxing G and side decks H are also made in the usual manner. The concave I in which the scroll is placed is made something after the shape of a ogee, the convex part over which the water passes to the buckets being raised much higher than in any other wheels for the purpose of directing the water with great force against the buckets below the axis of the shaft and conducting the same around to the buckets above the axis. The scroll commences to scroll at the small end in front on either side and thus continues to increase until it performs a complete revolution around the shaft for the purpose of directing the water as before described. The cap I is made in the usual manner.

The gate is raised by the attendant by means of a lever or other contrivance. The water enters the chute and passes on either side of the double spiral scroll block to the buckets of the two wheels at the same time, thus dividing the water and directing it to the buckets above and below its axis on the wheel at the same time.

The invention claimed and desired to be secured by Letters Patent consists in—

The peculiar form of the buckets and the double spiral scroll placed between them for directing the water in the manner above described.

WILLIAM HATFIELD.

Witnesses:

WM. P. ELLIOTT,  
WM BISHOP.