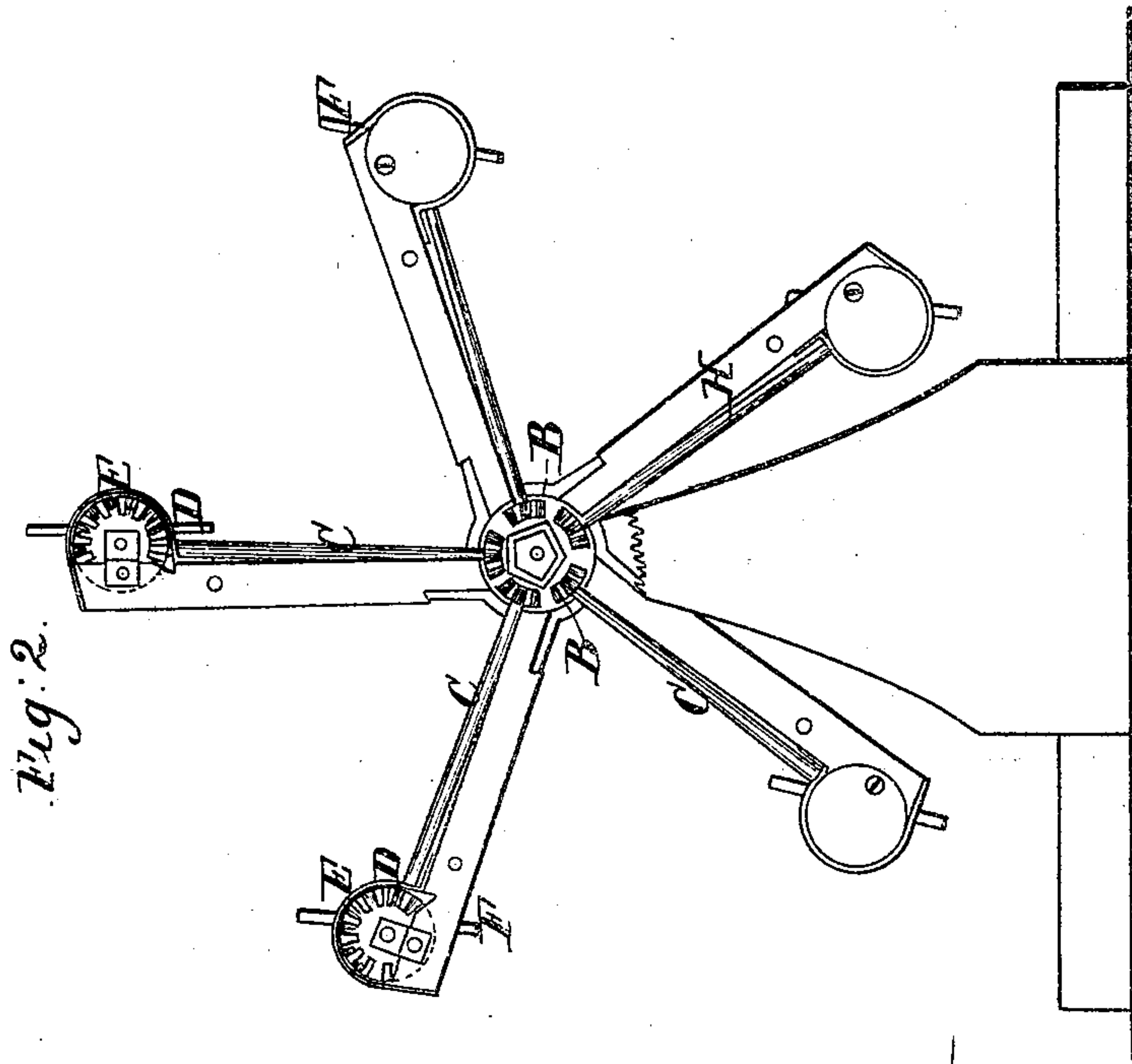


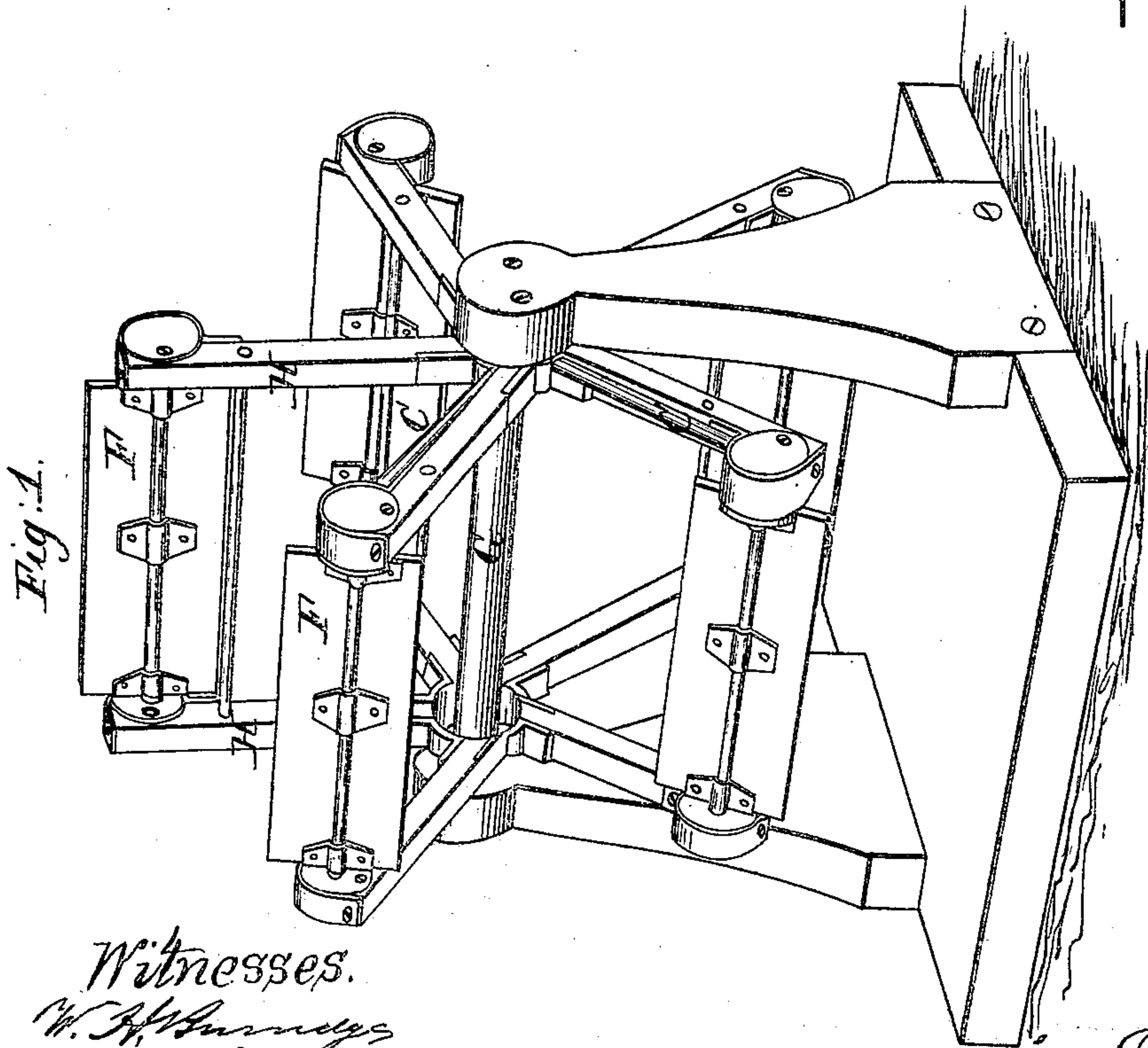
*E. Reid.*  
*Paddle Wheel.*

*No. 19,819.*

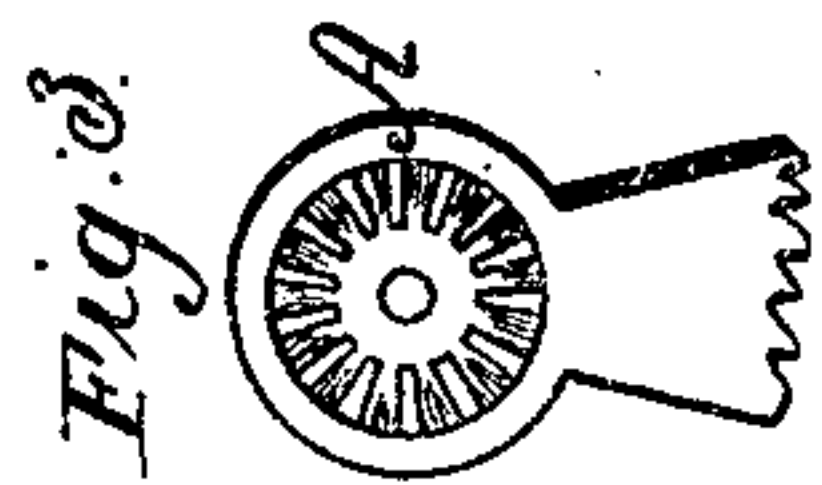
*Patented Aug. 28, 1860*



*Fig. 2.*



*Fig. 1.*



*Fig. 3.*

*Witnesses.*  
*W. B. Burrows*  
*Henry Deth*

*Inventor.*  
*E. Reid*

# UNITED STATES PATENT OFFICE.

EZRA REID, OF BAZETTA, OHIO.

## FEATHER PADDLE-WHEEL.

Specification of Letters Patent No. 29,819, dated August 28, 1860.

*To all whom it may concern:*

Be it known that I, EZRA REID, of Bazetta, in the county of Trumbull and State of Ohio, have invented new and useful Improvements in Steamboat Paddle-Wheels; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view, and Fig. 2 is a vertical section.

Like letters refer to like parts.

The nature of my invention relates to the arrangement of tangential arms and other devices for feathering the buckets, that is, in causing them to preserve a vertical position during the entire revolution of the shaft.

A, Figs. 1 and 3, represents a stationary bevel gear, through the center of which the main shaft of the wheel passes, which shaft is shown at G. A bevel wheel E, of the same size and number of cogs, is securely attached to each bucket or paddle F. A rod or shaft C extends from the stationary wheel A, to the bucket wheel E, upon each end of which is a bevel pinion of the same size as seen at B and D, the pinion B meshing into

the stationary wheel A, and the pinion D, meshing into the bucket wheel E. The arms H, that support the rods C, and bucket and wheel F, E, are placed tangential, in regard to the main shaft, so that the rods C are exactly radial. It follows as a matter of necessity, that if the main shaft G, is caused to rotate, carrying forward in its revolution, the arms H, rods C, buckets and wheels F, E, that the relative position of the buckets will be preserved, that is, the buckets will not rotate upon their own axes, during the revolution of the main shaft G, and consequently, if the buckets are all placed in a vertical position, they will perpetually preserve this position during the revolution of the main shaft.

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

The arrangement of the stationary wheel A, rods C, with their pinions B and D, the buckets F and wheels E, in their relation to each other and to the tangential arms H, operating in the manner and for the purpose specified.

EZRA REID.

Witnesses:

W. H. BURRIDGE,  
HENRY VOTH.