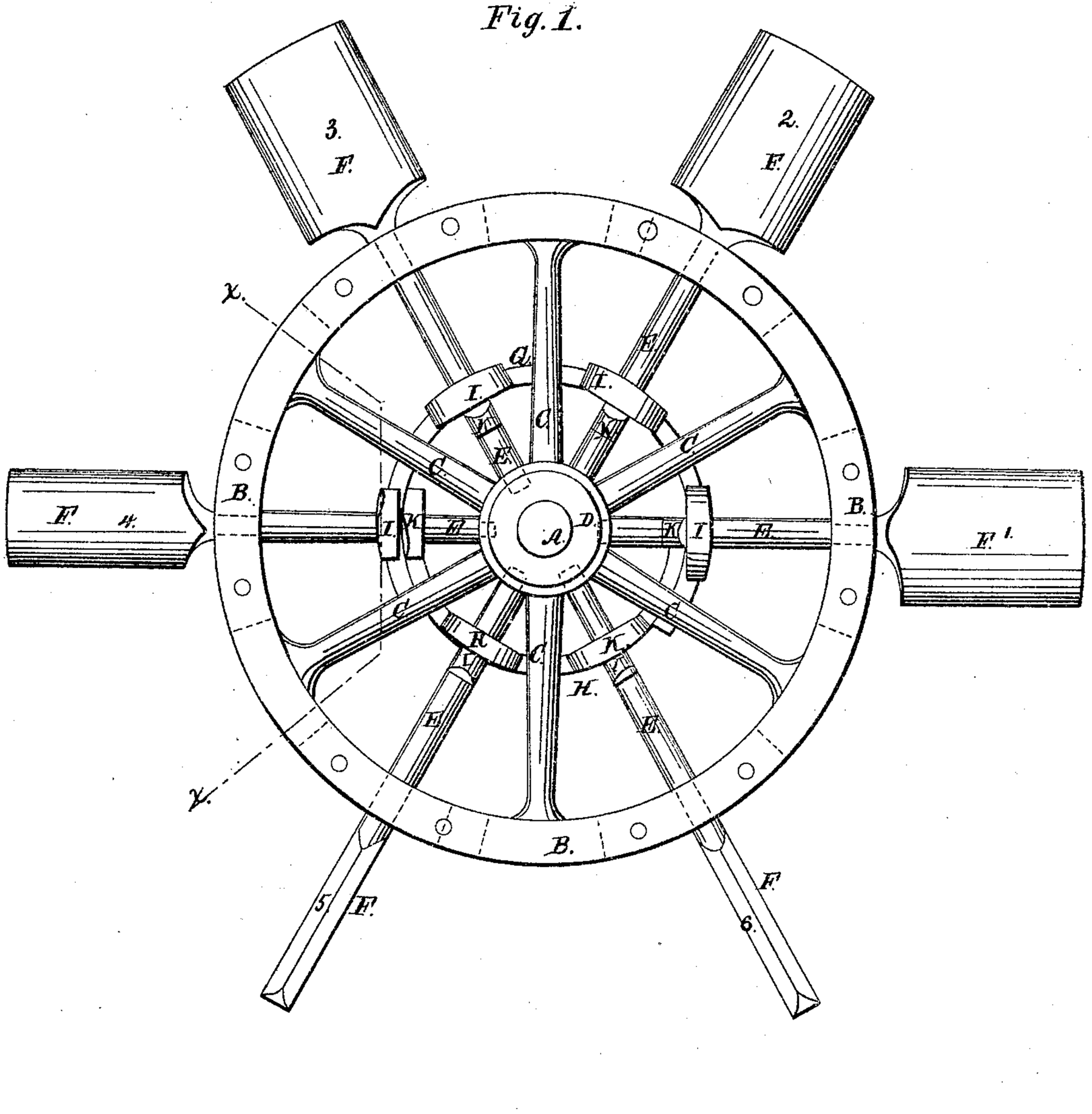
Sheet 1. 2 Sheets.

M. G. Collins.
Paddle Wheel.

No. 50,338. Patented Oct. 10, 1865.

Fig. 1.



Witnesses.

Alex. A. C. Hauck

W. F. Hall

Inventor.

By Munn & Co

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Sheet 2. 2 Sheets.

M. G. Collins.
Paddle Wheel.

No. 50,338. Patented Oct. 10, 1865.

Fig. 2.

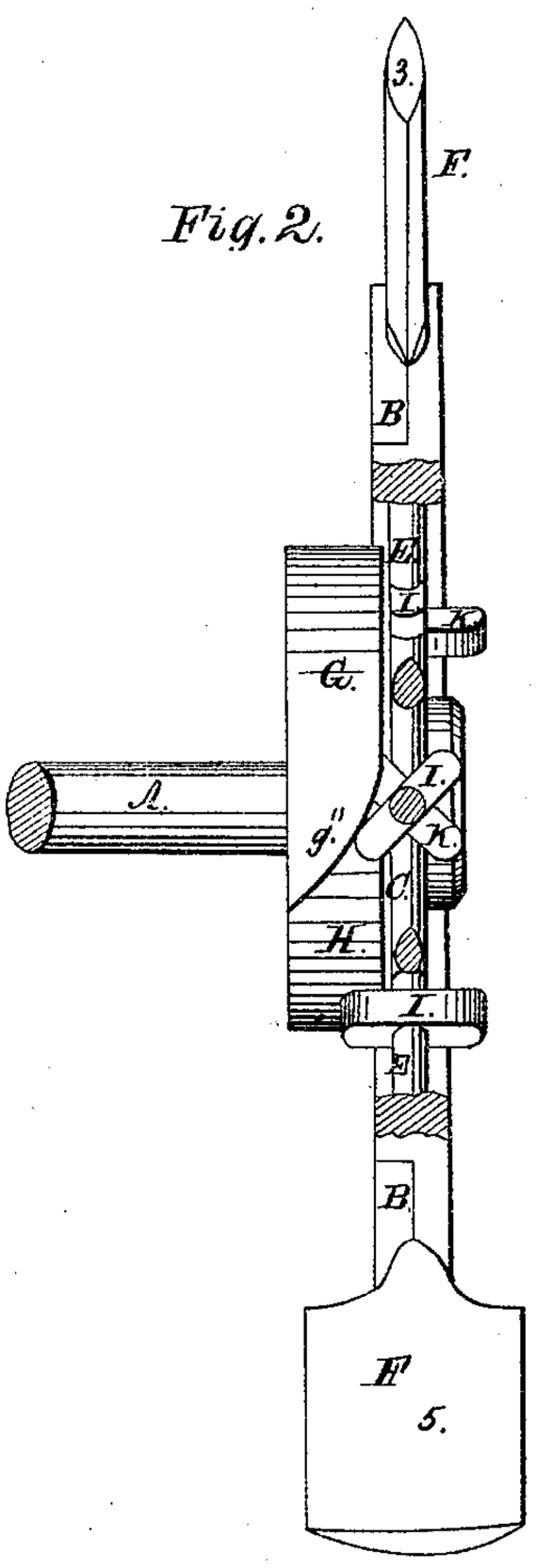
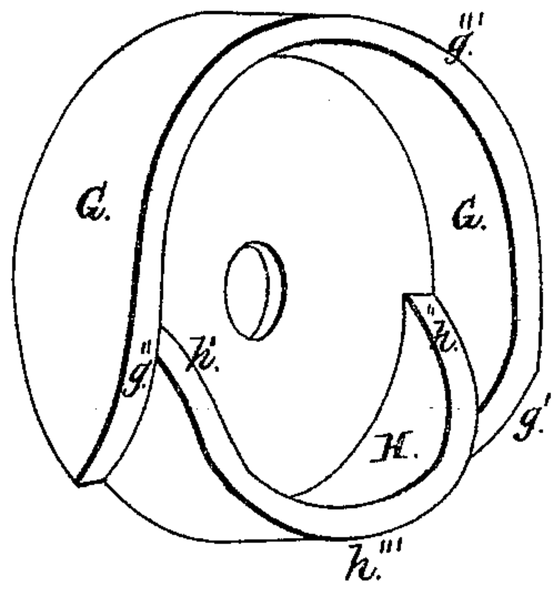


Fig. 3.



Witnesses.

Alex. H. C. Haines

N. F. Hall

Inventor.

M. Grier Collins

By Munn & Co

Attorneys

UNITED STATES PATENT OFFICE.

M. GRIER COLLINS, OF CUMBERLAND, MARYLAND, ASSIGNOR TO HORACE RESLEY AND HENRY H. HARTSOCK.

IMPROVED FEATHERING PADDLE-WHEEL.

Specification forming part of Letters Patent No. **50,338**, dated October 10, 1865.

To all whom it may concern:

Be it known that I, M. GRIER COLLINS, of Cumberland, in the county of Alleghany and State of Maryland, have made new and useful Improvements in Paddle-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, sufficient to enable one skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is a side elevation. Fig. 2 is an edge elevation, a portion being removed, on the line *x x*, Fig. 1. Fig. 3 is a perspective view of the double cam which rotates the paddle-shafts.

Corresponding parts are indicated by the same letters in the different figures.

The invention consists of a method of turning the paddles on their radial stems, so as to feather them in passing into and out of the water, the object being to present their flat surface to the water only at the effective period of the revolution of each.

A is the shaft of the wheel; B, the rim; C, the spokes or arms. D is a central collar, in which are socketed the inner ends of the stems E of the paddles F, which project radially from the rim of the wheel.

On the inner side of the wheel, and attached to the boat, is a double cam, G H, (shown in position in Figs. 1 and 2 and detached in Fig. 3.) The working-faces of the cams are constructed as shown in the latter figure, and are for the purpose of rotating the paddles on their axes by the impingement of the lugs I and K, which project from the stems E of the paddles.

To explain the action of the cams upon the paddles, beginning with paddle 1, it will be seen that the flat side of lug I, having climbed the incline *g'*, is now resting flatwise on the edge *g'''* of the cam G, and maintains that position until, reaching position 4, it commences to descend the incline *g''*, and the lug K to rise on the incline *h'* of the cam H, turning the paddle one-quarter of a revolution on its stem and presenting its flat surface to the water. The lug K now lies flatwise on the cam H until it reaches the incline *h''*, which is at the time the paddle is about to leave the water. The lug K, descending the incline *h''*, followed by the ascent of the lug I on the incline *g'*, brings the flat side of lug I again on the face *g'''* of the cam G and completes the half-rotation of the paddle on its stem.

The improvement is particularly designed for canal-boats; but is not limited to any special service.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of the projections on the paddle-stem with the stationary double cam, by means of which the paddles in their revolutions are feathered as they enter and leave the water, substantially as described.

The above specification of my improvement in paddle-wheels signed this 2d day of August, 1865.

M. GRIER COLLINS.

Witnesses:
ALEXR. A. C. KLAUCKE,
W. F. HALL.