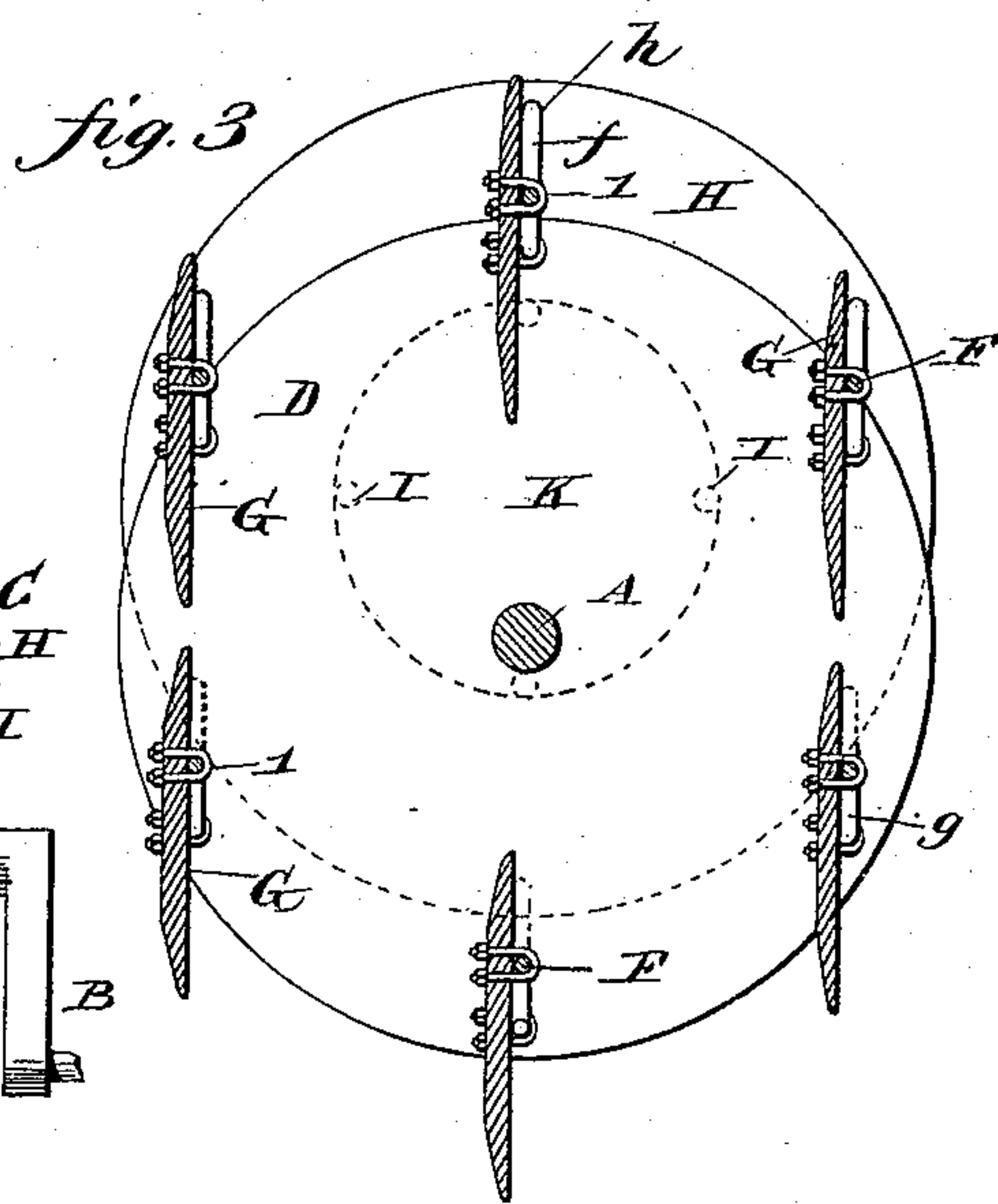
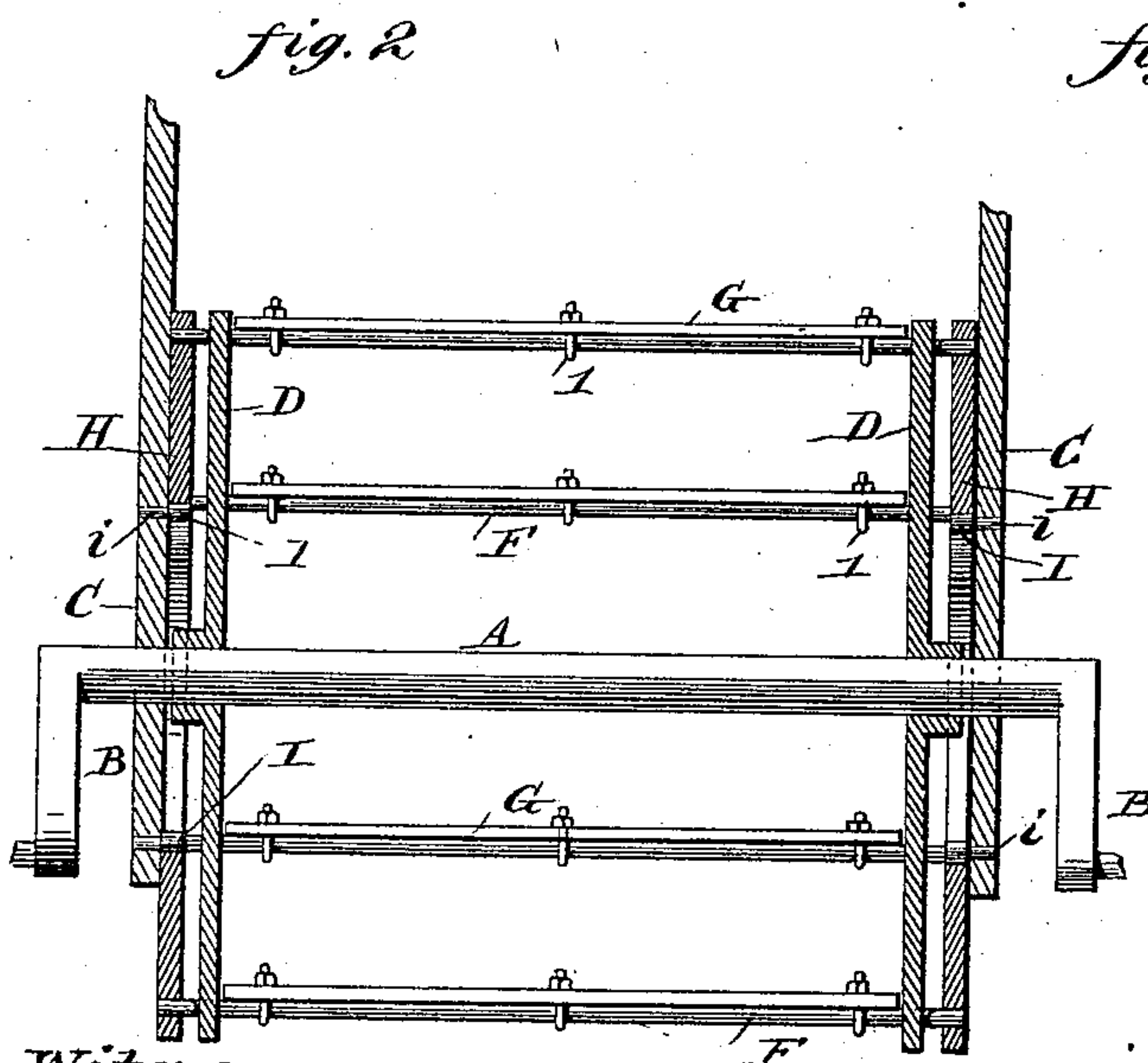
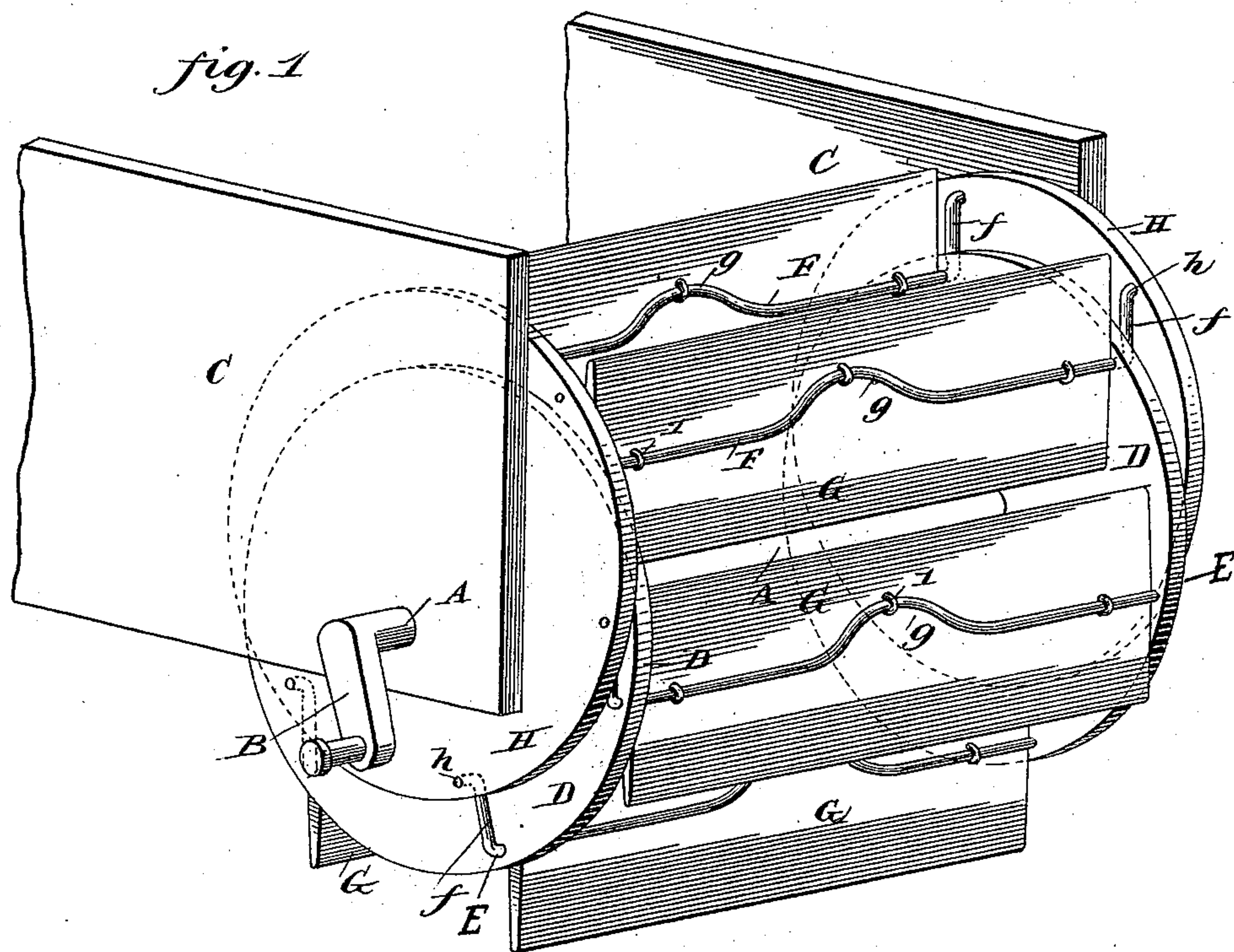


(No Model.)

W. CRAIGE.
PADDLE WHEEL.

No. 528,858.

Patented Nov. 6, 1894.



Witnesses.

J. F. Coleman
F. W. Keiser.

Inventor

Wm. Craige
By J. L. Fitzgerald.

Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM CRAIGE, OF PADUCAH, KENTUCKY.

PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 528,858, dated November 6, 1894.

Application filed January 6, 1893. Renewed April 17, 1894. Serial No. 507,929. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CRAIGE, a citizen of the United States, residing at Paducah, in the county of McCracken, State of Kentucky, have invented certain new and useful Improvements in Paddle-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to 10 which it appertains to make and use the same.

My invention relates to an improvement in paddle-wheels for steam-boats and the like.

The invention will first be described in connection with the accompanying drawings and 15 then pointed out in the claim.

In the drawings, Figure 1 is a perspective view of my improved wheel. Fig. 2 is a horizontal sectional view taken through the center of the paddle-shaft. Fig. 3 is a longitudinal sectional view, also taken through the center of the paddle-shaft. 20

Referring to the drawings, A is the paddle-shaft, provided with the usual crank B, and journaled at each end in bearing-frames C. 25 Fixed on the paddle-shaft are disks D provided with bearings E in which are journaled the feathering-shafts F attached rigidly to the paddles or floats G. Each end of these shafts F is cranked as shown at *f*, for a purpose hereinafter described. Just inside the 30 bearing-frames C are annular disks H placed eccentric to disks D and adapted to rotate on friction rollers I mounted on studs *i* secured to the bearing-frames C. The center of rotation of the annular disks H is at K; and near the peripheries of the annular disks H are bearings *h* in which are journaled the outer cranked ends *f* of the feathering shafts F. 35

It will be apparent from the above description that when the paddle-shaft is turned by 40 means of cranks B the float-disks D will re-

volve, carrying floats G around. As the cranked ends of the feathering-shafts F are pivoted or journaled in the annular disks H, and as the latter are located eccentric to the 45 float-disks, the floats G will always retain a vertical position thereby entering and leaving the water edgewise and pulling flatwise through the water.

To secure the floats G to the feathering-shafts F in a firm and simple manner, each shaft has a central curved or cranked portion *g*, against which the float bears and to which it is secured by stirrup-bolts *l* as shown. 50

It will be observed that each paddle presents its maximum surface to the water when 55 beneath the surface, and its minimum surface when entering or leaving the water, whereby all dragging of the floats through the water in a vertical direction is avoided. 60

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

The combination, with a shaft and a pair of drive-disks rigid thereon, of a series of annular disks movably supported parallel to the 65 drive-disks, a series of feathering shafts having a cranked central portion and cranked ends, said feathering shafts journaled in the bearings of the drive-disks and having their 70 cranked ends connected to the annular disks, a series of floats, and a series of stirrup-bolts passing through the floats and surrounding the feathering shafts, substantially as described and for the purpose set forth. 75

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM CRAIGE.

Witnesses:

J. SPENCE,

F. DUDLEIGH.