

J. L. DOWLER & T. S. BIRDSEYE.  
Propeller-Wheels.

No. 157,742.

Patented Dec. 15, 1874.

Fig: 2.

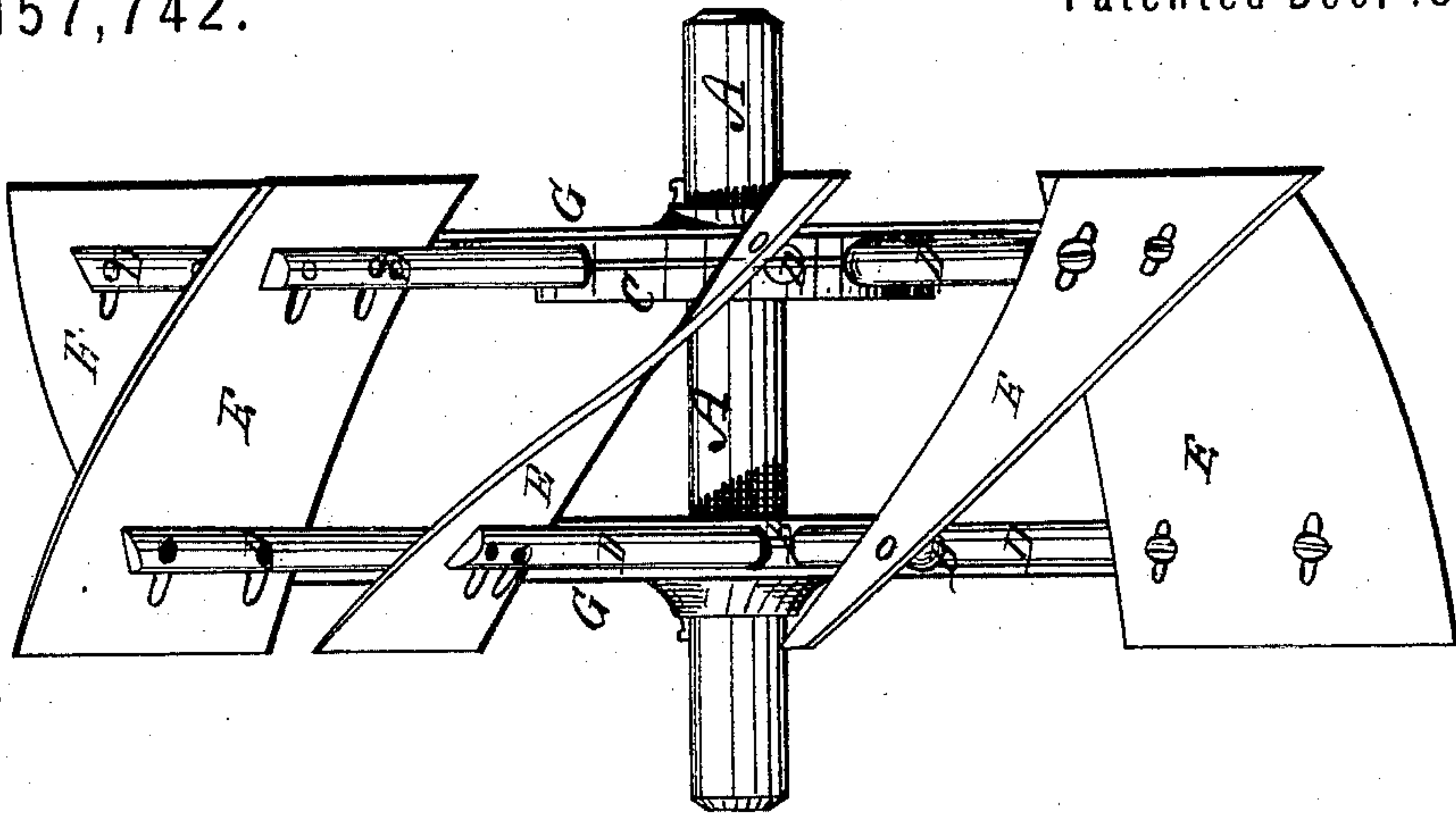
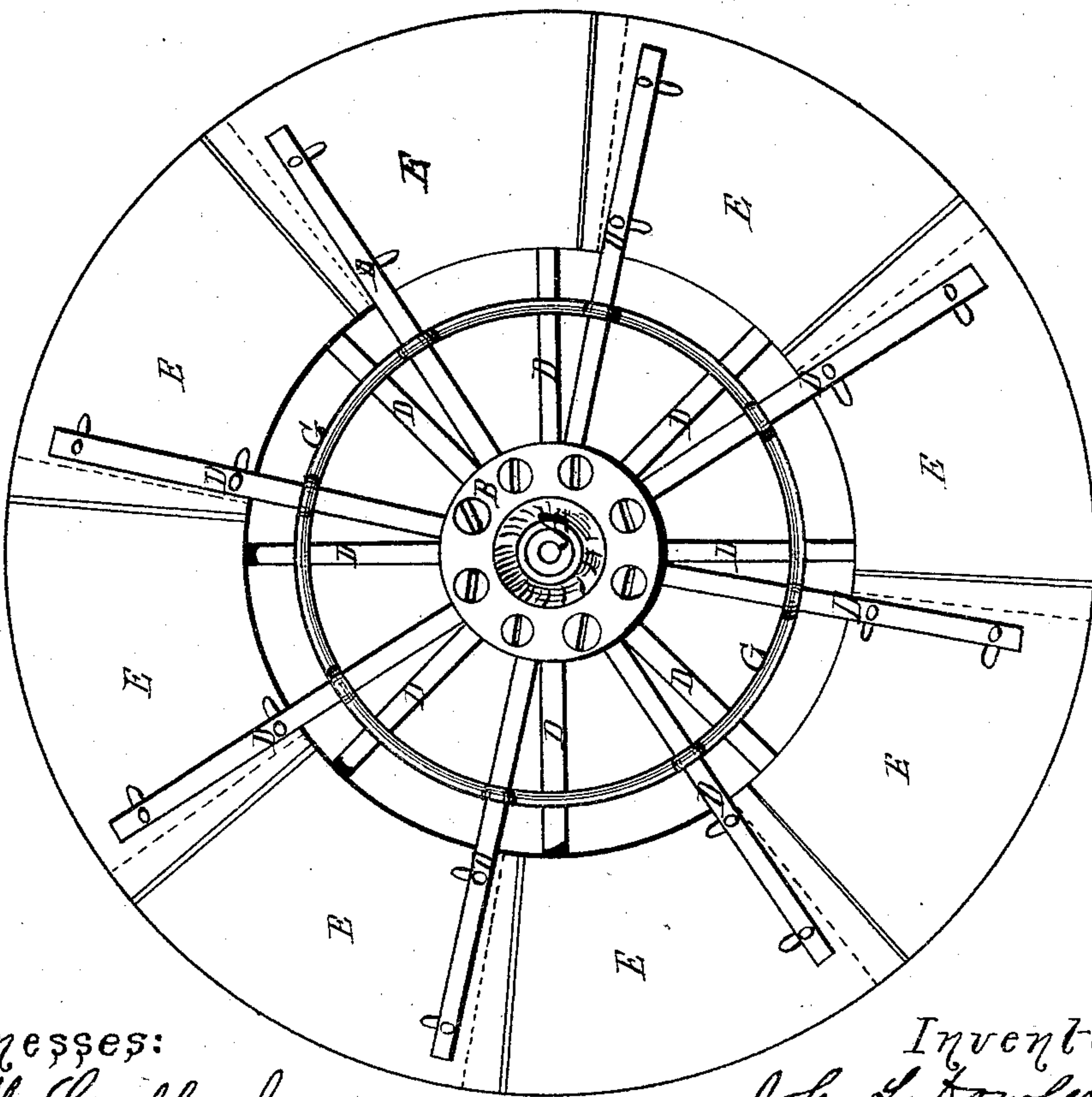


Fig: 1.



Witnesses:  
E. M. Gallaher.  
Geo Bartle

Inventors:  
John L. Dowler  
Thos. S. Birdseye  
per their attys,  
J. S. Brown.

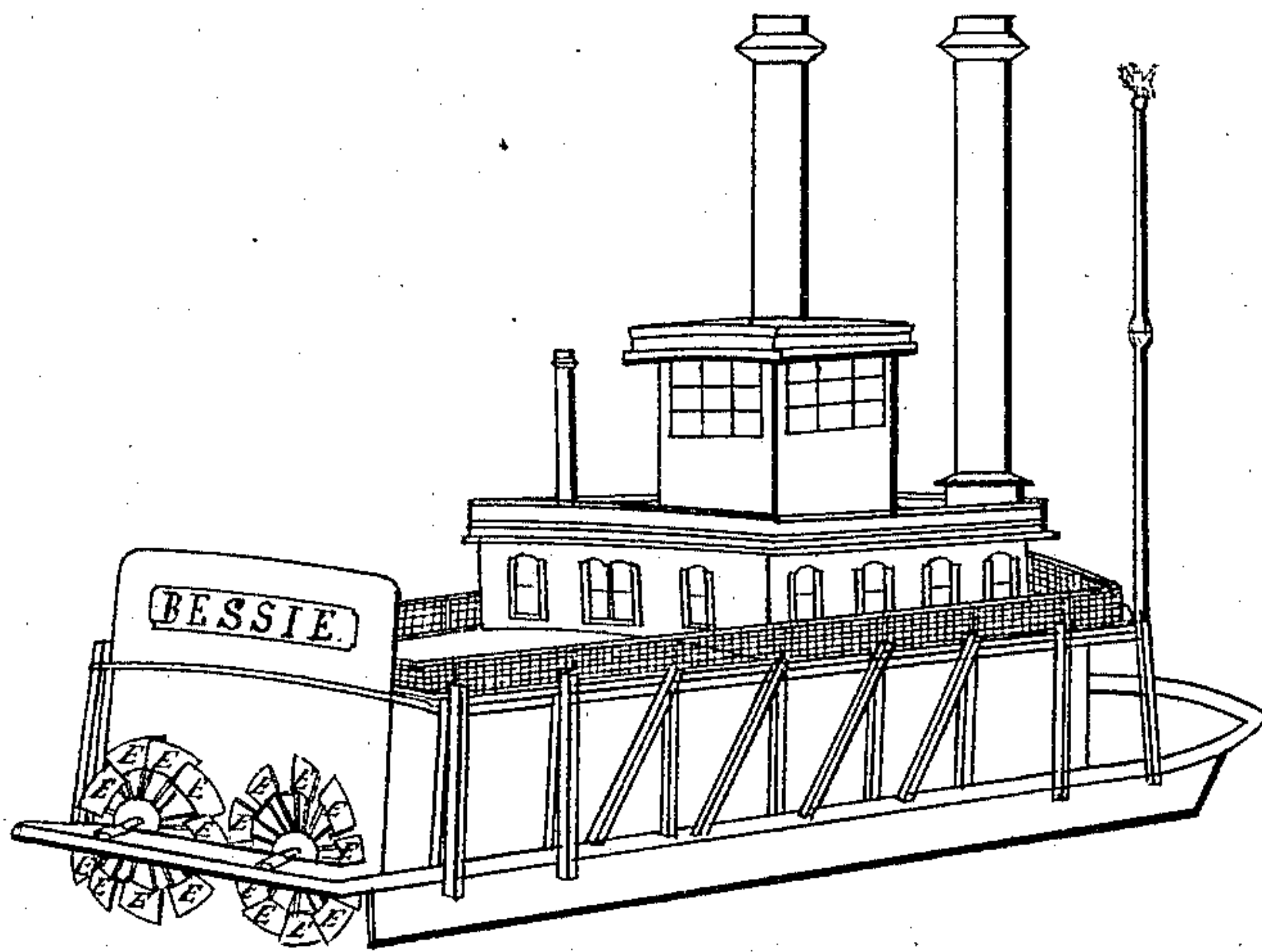
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*Fig: 3.*



Witnesses:

*E. M. Gallaher.*  
*Geo. Barth*

Inventors:

*John L. Dowler,*  
*Thos. S. Birdseye,*  
*By their atty.,*  
*J. S. Brown.*



# UNITED STATES PATENT OFFICE.

JOHN L. DOWLER, OF BEARDSTOWN, ILLINOIS, AND THOMAS S. BIRDSEYE,  
OF BIRMINGHAM, CONNECTICUT.

## IMPROVEMENT IN PROPELLER-WHEELS.

Specification forming part of Letters Patent No. **157,742**, dated December 15, 1874; application filed  
November 5, 1872.

*To all whom it may concern:*

Be it known that we, JOHN LEFFEL DOWLER, of Beardstown, in the county of Cass and State of Illinois, and THOMAS SHELTON BIRDSEYE, of Birmingham, in the county of New Haven and State of Connecticut, have invented an Improved Propeller-Wheel for Steamboats; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification—

Figure 1 being a side view of the improved propeller-wheel; Fig. 2, a top view of the same; Fig. 3, a view showing the arrangement of the wheel or wheels in a boat.

Like letters designate corresponding parts in all of the figures.

Our invention consists in a propeller-wheel having oblique floats adjustable to different angles, the shaft of the wheel being above water and parallel, nearly or exactly, with the surface of the water and in the line of the boat's motion; also, in the peculiar construction of the wheel by which the floats may be conveniently adjusted.

Upon the shaft A are two pairs of hub flanges, B and C, situated at a proper distance apart, according to the desired width of the wheel. The flanges of each pair are held together by screw-bolts, and between the flanges are thereby clamped arms or spokes D D, which fit in sockets or depressions in the adjacent surfaces thereof. These sockets are preferably round, so that round wheel-arms may be used and be readily turned, and be adjusted to any angular position therein. The flanges and arms are so adapted to each other that when the flanges are clamped against the arms their adjacent surfaces do not quite meet, thereby allowing a perfect hold upon the arms. The floats or paddles E E are attached each to one arm, D, of each flange-wheel; and in order to give the requisite obliquity or inclination thereto the arm of one flange-wheel is placed farther

round on the shaft than the other; and this obliquity is adjusted to the angle required—say, from ten to forty-five degrees from a plane at right angles to the wheel-shaft—by drawing one pair of flanges, C, closer to the other flanges B, or separating it farther therefrom. The round arms of the wheel allow them to be adjusted to different angles for this purpose, and the holes therein, through which the paddles are bolted thereto, may be transversely oblong, to allow a turning adjustment. Thus we can adapt the wheel to the occasion, for, with a small angle or fine screw, we obtain great power of draft, as when towing large boats, and with a coarse screw we produce great speed. The number of paddles varies with the size of the wheel, or as may be desired.

To give additional strength and firmness to the wheel, a circular brace or stay-rod, G, extends around from one arm to another, as represented, and is or may be attached to the arms by eyes, through which the arms pass.

The flanges are keyed to the shaft or secured thereto by set-screws, or by both means together.

The planes of the wheel's revolution being at right angles to the line of motion of the boat, the oblique paddles, as they dip into and pass through the water, force the boat forward. The wheel is generally placed at the stern of the boat, the shaft being turned directly by the engine.

In order to counterbalance the lateral action of the paddles of one wheel, two wheels are or may be placed side by side on the boat, and turn either toward or from each other in the water. Only the paddles of the wheel or wheels dip into the water, the shaft and inner part of the arms being out of water. The wheel is therefore adapted especially to propellers to run in shoal water.

The floats or paddles are preferably made of boiler-plate iron, the arms of round iron or steel rod, and the flanges of cast-iron.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A propeller-wheel, having oblique floats or paddles E E, adjustable to different angles, and their opposite ends supported by radial arms, substantially as herein described.

2. The combination of the clamping-flanges B C, constructed as described, the round wheel-arms D D and oblique floats E E, sub-

stantially as and for the purpose herein specified.

JOHN LEFFEL DOWLER.

THOS. SHELTON BIRDSEYE.

Witnesses:

CHARLES B. DEAN,

WM. HOPKINS,

S. M. GARDNER,

J. S. BROWN.