

No. 754,991.

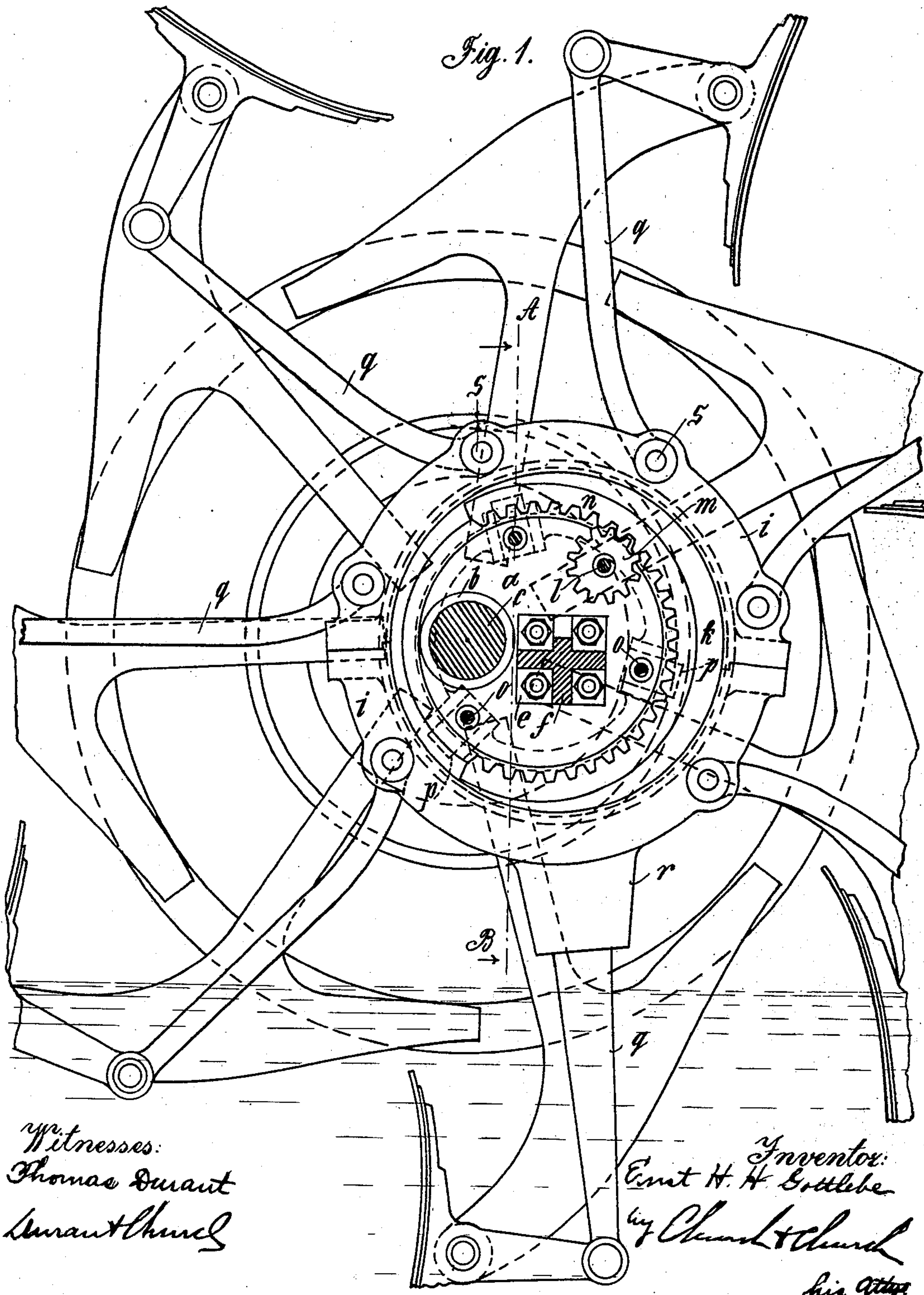
PATENTED MAR. 22, 1904.

E. H. H. GOTTLEBE.  
PADDLE WHEEL FOR VESSELS.

APPLICATION FILED MAY 13, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:  
Thomas Durant  
Durant & Church

Inventor:  
Ernst H. H. Gottlebe  
by *Church & Church*  
his atty.

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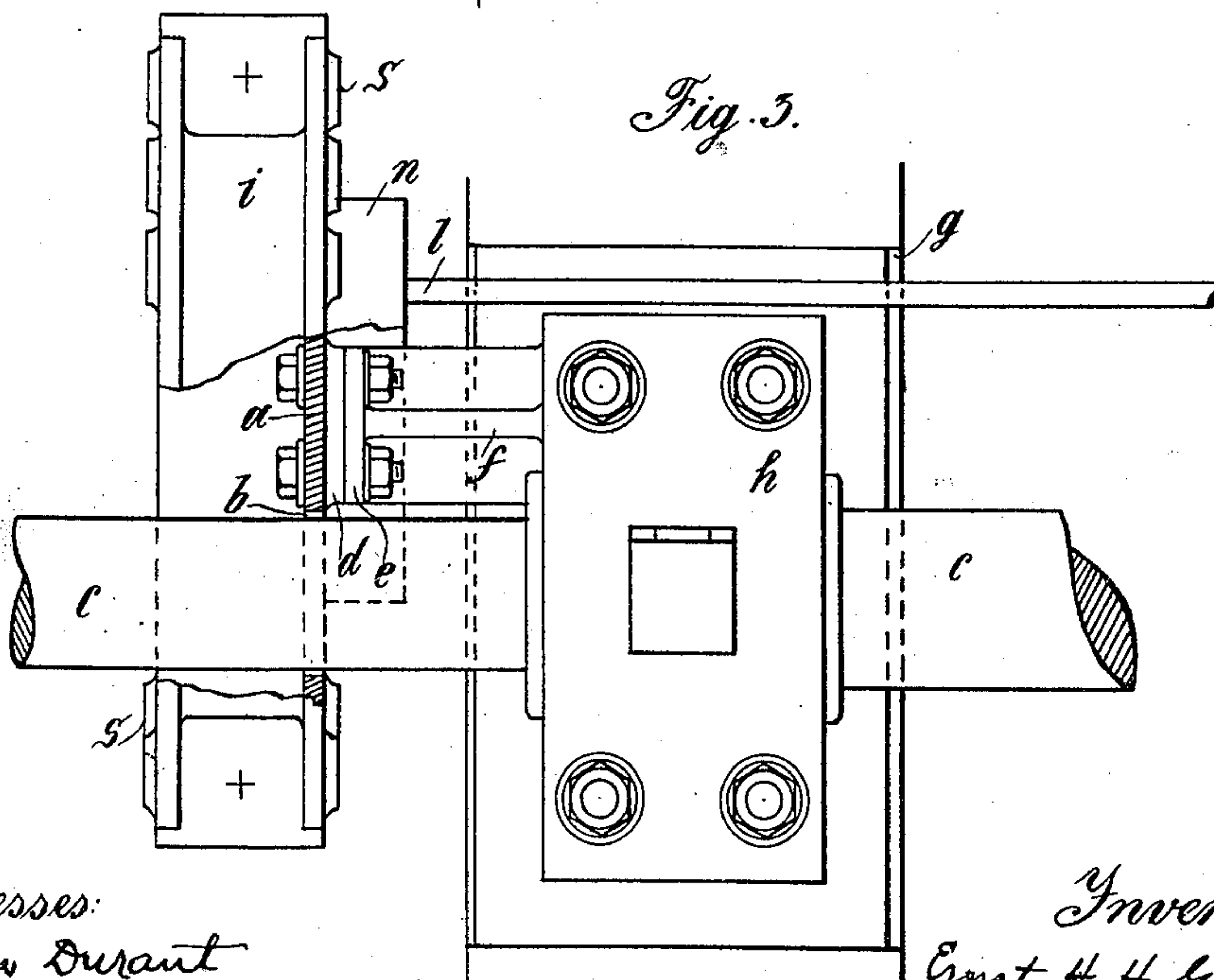
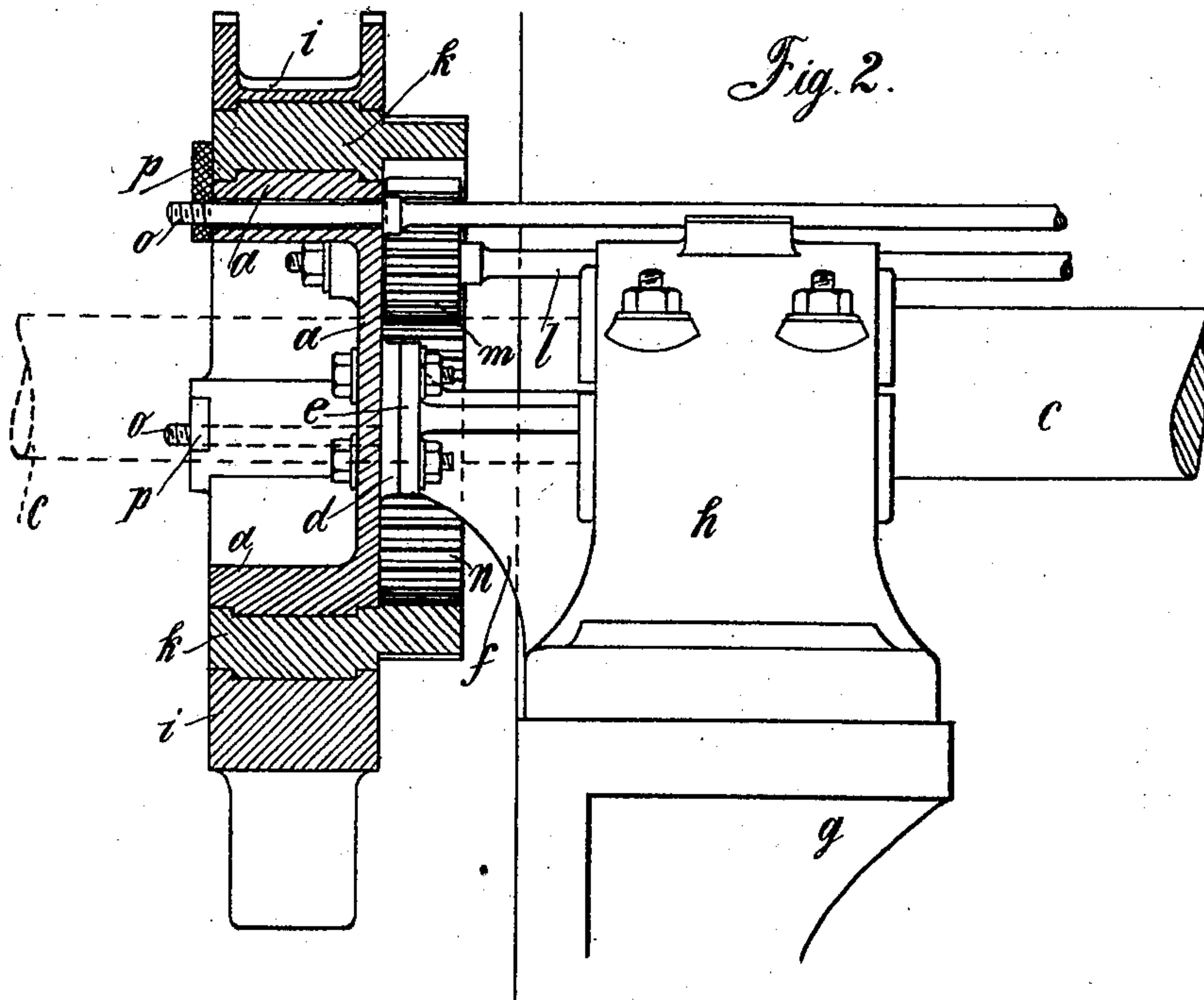
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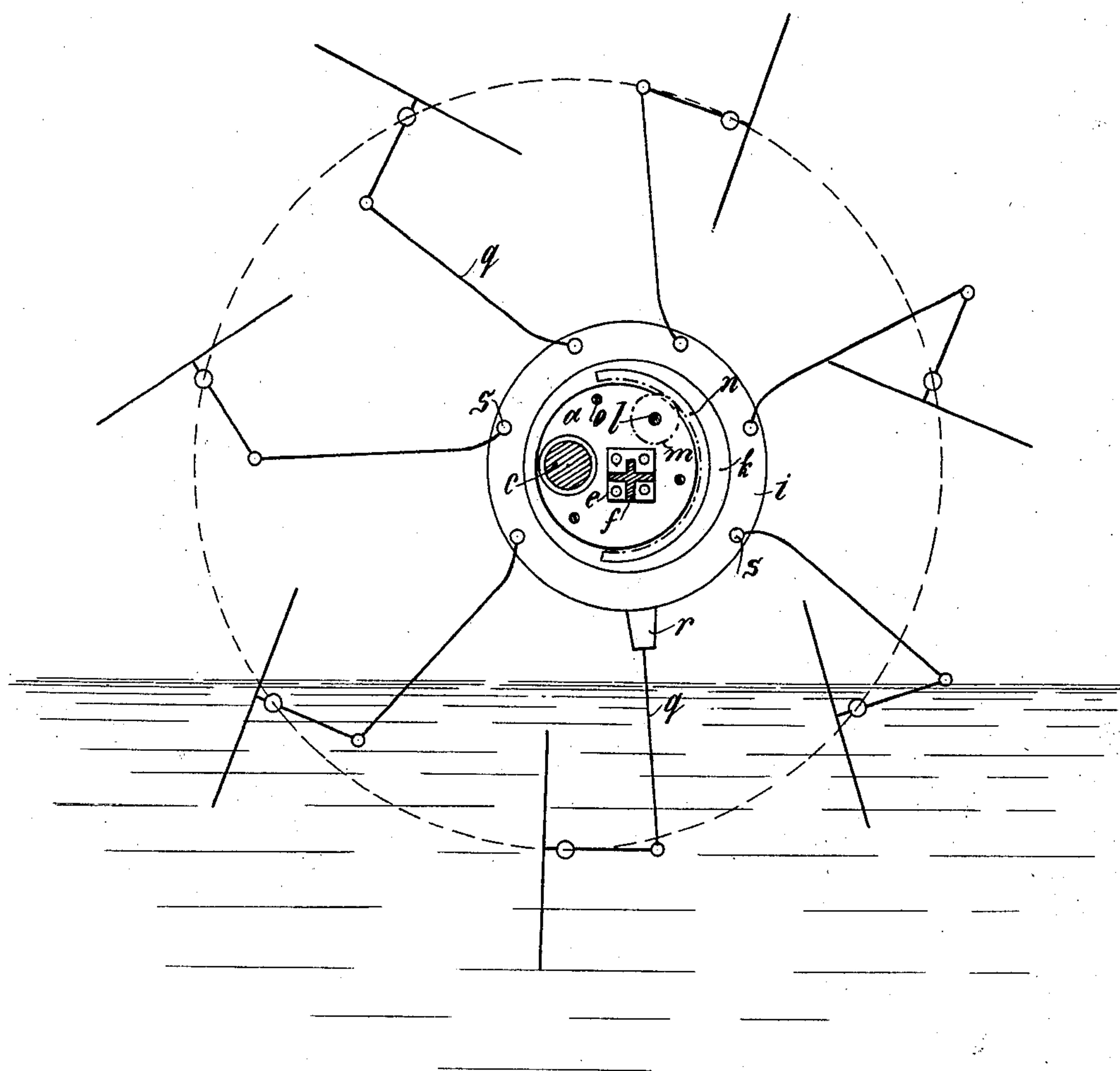
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3 SHEETS—SHEET 3.

*Fig. 4.*



*Witnesses:*  
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# UNITED STATES PATENT OFFICE.

ERNST HERMANN HUGO GOTTLEBE, OF MAGDEBURG, GERMANY.

## PADDLE-WHEEL FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 754,991, dated March 22, 1904.

Application filed May 13, 1903. Serial No. 156,984. (No model.)

*To all whom it may concern:*

Be it known that I, ERNST HERMANN HUGO GOTTLEBE, engineer, a subject of the King of Saxony, residing at Magdeburg, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in or Relating to Paddle-Wheels for Vessels, of which the following is a specification.

Paddle-wheels with movable paddles which can be made to enter or leave the water at variable angles by shifting the center of the eccentric relatively to the center of the shaft of the paddle-wheel are well known. It is, however, new to effect the shifting of the center of the eccentric by an eccentrically-bored intermediate part of ring forming the surface on which the eccentric-ring travels, said intermediate ring being adjustably mounted on the eccentric-sheave, which is keyed to the shaft of the wheel. Unlike any of the known constructions with adjustable eccentrics arranged outside the wheel the arrangement according to this invention is suitable for use in paddle-wheel steamers of modern construction, in which the eccentric controlling the movement of the paddles is mounted on the wheel-spindle in the space between the shaft and the paddle-wheel close to the side of the ship. The construction according to this invention is very reliable and can be used in large steamers with engines developing over one thousand horse-power. The rotary movement required to change the position of the eccentric-center relatively to the shaft-center can be effected by means of a spindle coming from the engine-room and passing through the side of the ship. The change of position by turning the intermediate ring is very easily made, so that even on very large steamers it can be effected during the journey. The rotary change of position has also another advantage, which is that the angles at which the paddles enter or leave the water are not dependent on each other, as they would be in the case of the change of position being effected by rectilinear or approximately rectilinear shifting, so that whatever be the position of the eccentric the wheel has a slightly-greater efficiency than before.

In the accompanying drawings, Figure 1

shows the wheel with the shifting device in side elevation as seen from the side of the ship. Fig. 2 is a vertical section on line A B, Fig. 1; and Fig. 3 is a plan view of Fig. 2, and Fig. 4 is a diagrammatic view of the wheel and shifting device.

*a* is the eccentric-sheave, through an aperture *b* in which loosely passes the wheel-shaft *c*. It is secured by means of a square boss *d* to a similarly-shaped plate *e* of the eccentric-bracket *f*. The eccentric-bracket *f* is carried by a bracket *g*, secured to the ship's side, supporting the bearing *h* for the wheel-shaft. The eccentric-ring *i* is not in this case mounted direct on the eccentric-sheave, but between the two is inserted an intermediate part *k*, which can rotate on the sheave *a* and be fixed in any position. The rotation of the said intermediate ring *k* is effected by means of a spindle *l*, (supported in the sheave *a*), which communicates with the interior of the ship and is provided at its outer end with a pinion *m* and engages with a ring *n* on the intermediate ring *k*, provided with inner teeth.

The parts are fixed in position by means of spindles *o*, which have at their outer ends screw-threads and, similarly to the spindle *l*, are supported in the sheave *a*, passing through the side into the interior of the ship. They engage at their outer ends with clamps *p*, provided with screw-threads. It follows that the shifting and securing of the intermediate ring *k* can be effected from the interior of the ship. This shifting can be effected during a journey. The arms *q*, leading to the paddles, may be secured to the eccentric-ring *i* either by means of sockets, such as *r*, or by means of links, such as *s*.

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

1. A paddle-wheel with adjustable angle-paddles comprising a rotary shaft, an eccentric surrounding said shaft, an eccentric-ring on said eccentric, an outer eccentric-ring, blade-carrying levers mounted on said outer eccentric-ring and means for partly rotating the inner eccentric-ring relatively to the eccentric substantially as set forth.

2. A paddle-wheel with adjustable angle-paddles, comprising a rotary shaft, an eccen-

tric surrounding said shaft, a toothed eccentric-ring on said eccentric, an outer eccentric-ring, blade-carrying levers mounted on said outer eccentric-ring and a rotatable pinion  
5 engaging said toothed eccentric-ring, substantially as set forth.

10 3. A paddle-wheel with adjustable angle-paddles comprising a rotary shaft, an eccentric surrounding said shaft, an eccentric-ring, on said eccentric, an outer eccentric-ring, blade-carrying levers mounted on said outer eccentric-ring, and means for partly rotating

the inner eccentric-ring relatively to the eccentric in combination with clamping means for securing the two eccentric-rings in adjusted position, substantially as described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNST HERMANN HUGO GOTTLEBE.

Witnesses:

CARL GRAINNLY,  
OTTO WOLFF.