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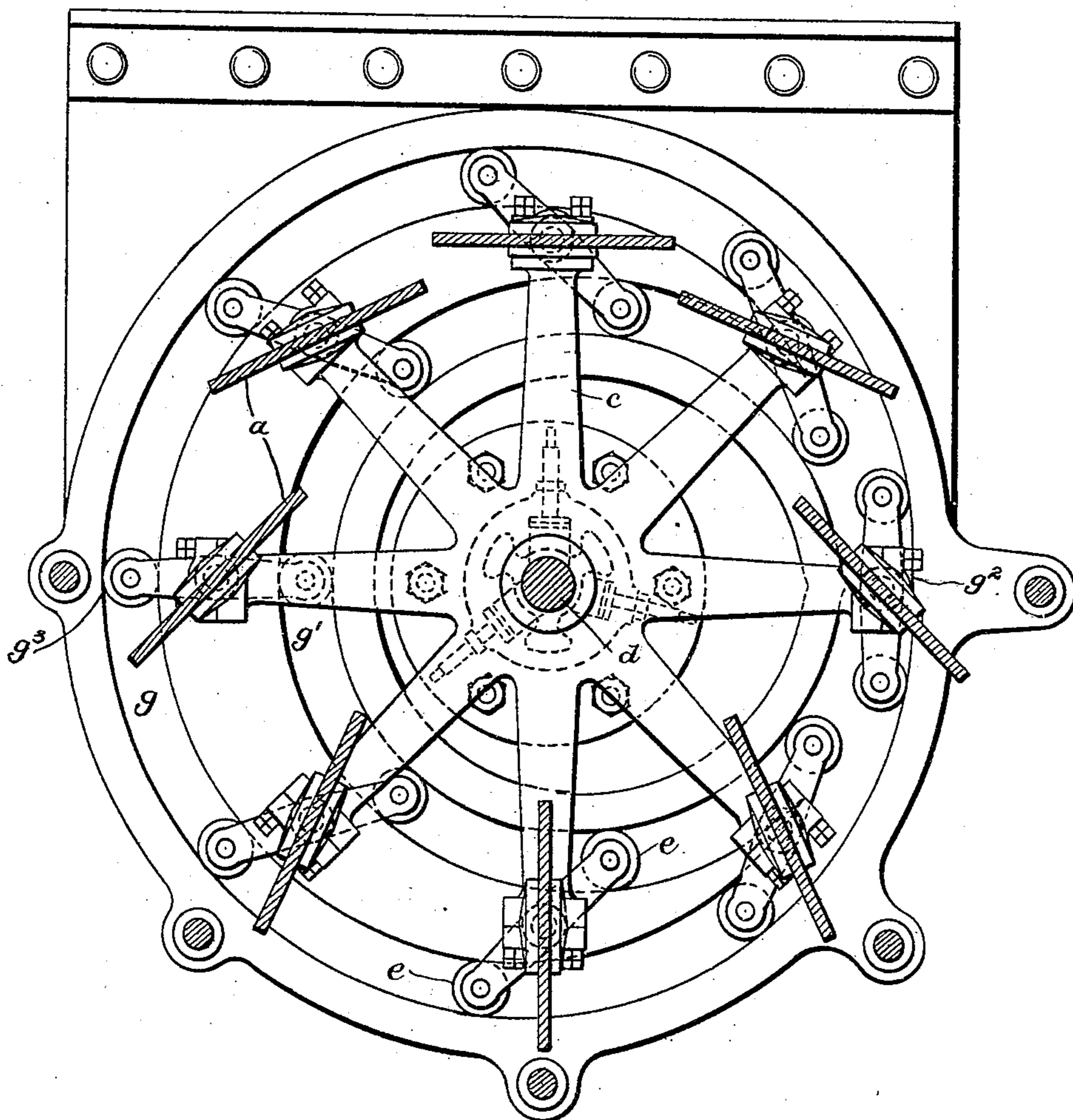
G. A. WIMAN & F. SCHAUMAN.

PADDLE WHEEL.

APPLICATION FILED JUNE 1, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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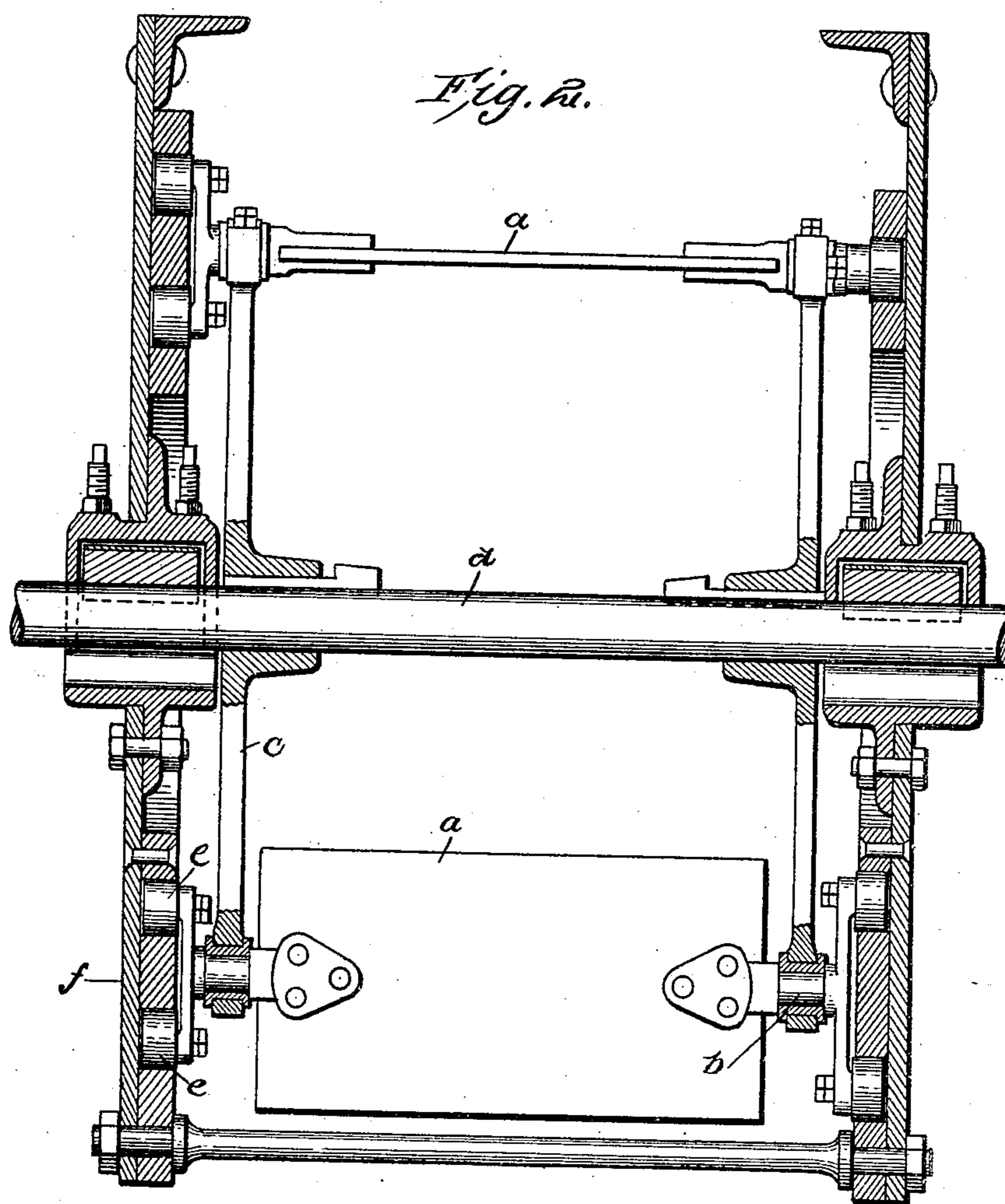
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3 SHEETS—SHEET 2.



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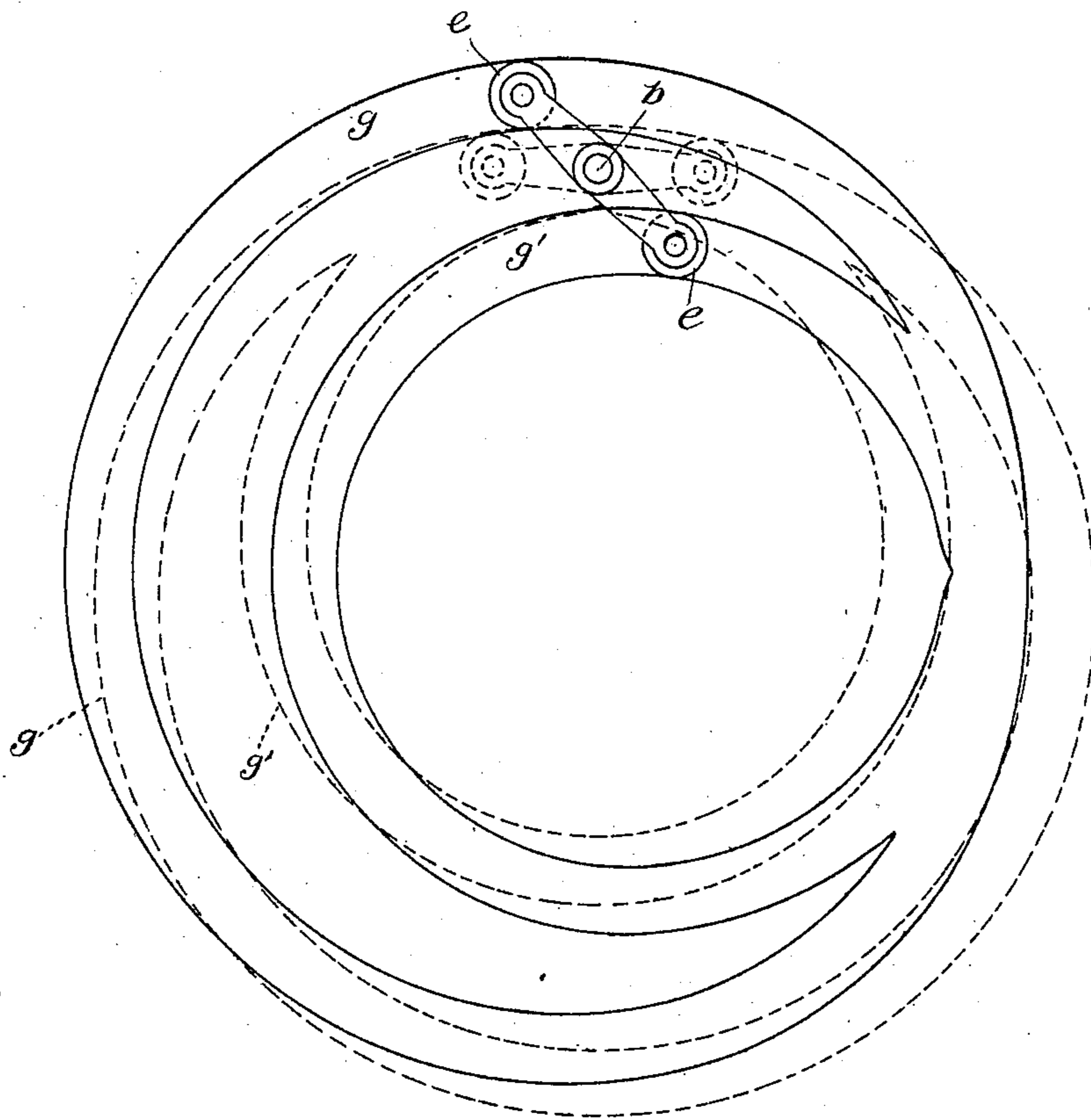
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GUSTAF ADAM WIMAN, OF MALMÖ, AND FRIDOLF SCHAUMAN, OF STOCKHOLM, SWEDEN.

PADDLE-WHEEL.

No. 814,495.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed June 1, 1904. Serial No. 210,681.

To all whom it may concern.

Be it known that we, GUSTAF ADAM WIMAN, residing at Malmö, and FRIDOLF SCHAUMAN, residing at Stockholm, in the Kingdom of Sweden, subjects of the King of Sweden and Norway, have invented certain new and useful Improvements in Paddle-Wheels, of which the following is a specification.

Our invention relates to paddle-wheels of that class utilized for propelling vessels, although the same may also be employed as a motor-wheel to be driven by water, air, or steam.

The invention consists of a wheel having rotatable paddle-boards which are so mounted that each of the boards will during the rotation of the wheel assume positions which will produce the greatest results.

Means are employed whereby the constant changing of the angles of the boards will automatically result during the rotation of the wheel.

In the accompanying drawings we have shown the preferred forms of our invention.

In said drawings, Figure 1 is a cross-section through the wheel. Fig. 2 is a longitudinal section therethrough, and Fig. 3 is a diametrical view showing by full and dotted lines the relative positions of the slots in the two opposed plates and the positions assumed by the rollers of one of the paddle-boards disposed therebetween.

Referring to the figures by reference characters, a are paddle-boards having pivot-necks b , journaled in arms c , which are fixed on a shaft d , which in this case may be the driving-shaft of a vessel. Each pivot b is firmly connected at its outer end with two pins or rollers e , adapted to travel within slots g g' , formed in plates f , which are located at the two ends of the paddle-wheel. These slots g g' are eccentrically disposed, and slot g' is arranged within the slot g , though they merge at a point g^2 , as shown in Fig. 1. As a result of this arrangement the rollers e of each paddle-board will successively assume different positions relative to each other during the rotation of the shaft, and the paddle-boards will of course be moved with their rollers so as to assume various angles during their rotation, as clearly shown in Fig. 1.

At the point g^2 , where the two slots merge, the pivots change their positions, so that each

roller e upon leaving the outer slot g will enter the inner slot g' . During each revolution of the shaft d the paddle-boards are shifted one hundred and eighty degrees, and as a result thereof they assume during their rotation different positions whereby the most favorable propelling results are obtained.

As is shown in Fig. 1, a dead-center is created at the point g^3 diametrically opposite the point g^2 , and for avoiding this the two plates f may be so arranged relative to each other that the slots in one plate assume a position at ninety degrees relative to the slots in the other plate, as clearly shown in Fig. 3. As a result of this arrangement the rollers at the two ends of each paddle-board do not pass the dead-center simultaneously.

As heretofore stated, while the wheel is particularly adapted for propelling vessels it can also be utilized as a power-wheel adapted to be driven by air, water, steam, or other like motive power, and in this case the slots g g' are made in the form of closed channels for receiving the motive fluid.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In paddle-wheels, stationary end plates, a shaft passing concentrically through said plates, each of said plates having a pair of slots disposed eccentrically around said shaft and so placed one within the other that they intersect at a given point, the intersecting point of the slots in one end plate being at a phase difference of substantially ninety degrees from the intersecting point of the slots in the other end plate, paddle-boards interposed between said end plates, pivot members rigidly secured to each end of said paddle-boards, supporting-arms for said pivot members carried by said shaft, and rollers carried by said pivot members adapted to travel in said slots whereby the relation of the planes of the paddle-boards to the shaft will be constantly varied during the travel of the boards around said shaft.

2. In paddle-wheels, a shaft, end plates disposed around said shaft, each of said plates having a pair of slots disposed eccentrically around said shaft and so placed one within the other that they will intersect at a given point, the intersecting point of the slots in one plate being at a phase difference of substantially ninety degrees from the intersecting

point of the slots in the other plate, paddle-boards interposed between said plates, and means coöperating with said paddle-boards and the slots in said plates whereby the planes
5 of the paddle-boards to the shaft will be constantly varied at all times during the travel of the boards around said shaft.

In testimony whereof we have affixed our signatures in presence of two witnesses.

GUSTAF ADAM WIMAN.
FRIDOLF SCHAUMAN.

Witnesses:

E. HEDENSKAY,
A. LARSON.