

No. 627,860.

Patented June 27, 1899.

T. H. A. LUKATIS.
FEATHERING BLADE FOR PADDLE WHEELS.

(Application filed Aug. 1, 1898.)

(No Model.)

Fig. 1

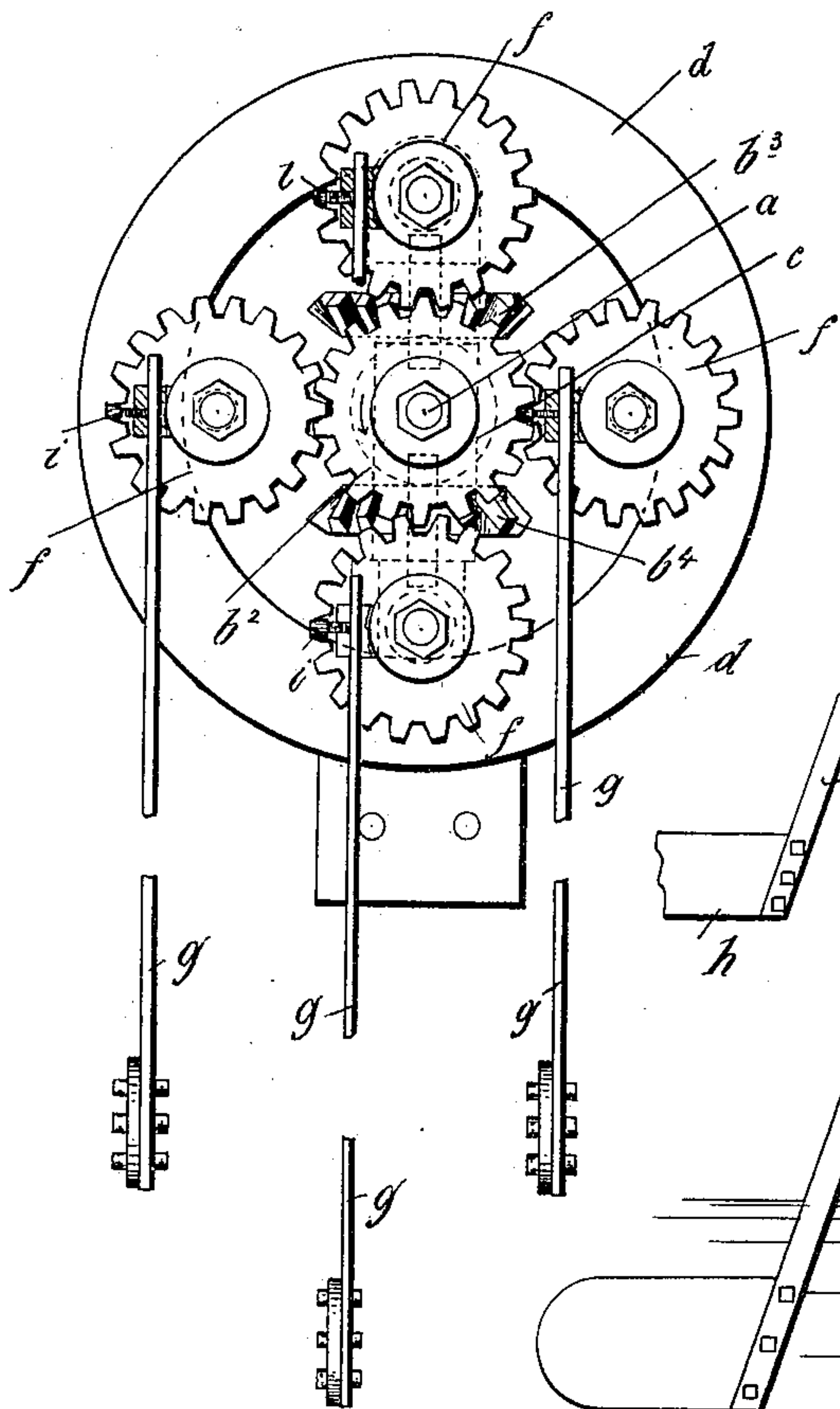


Fig. 2

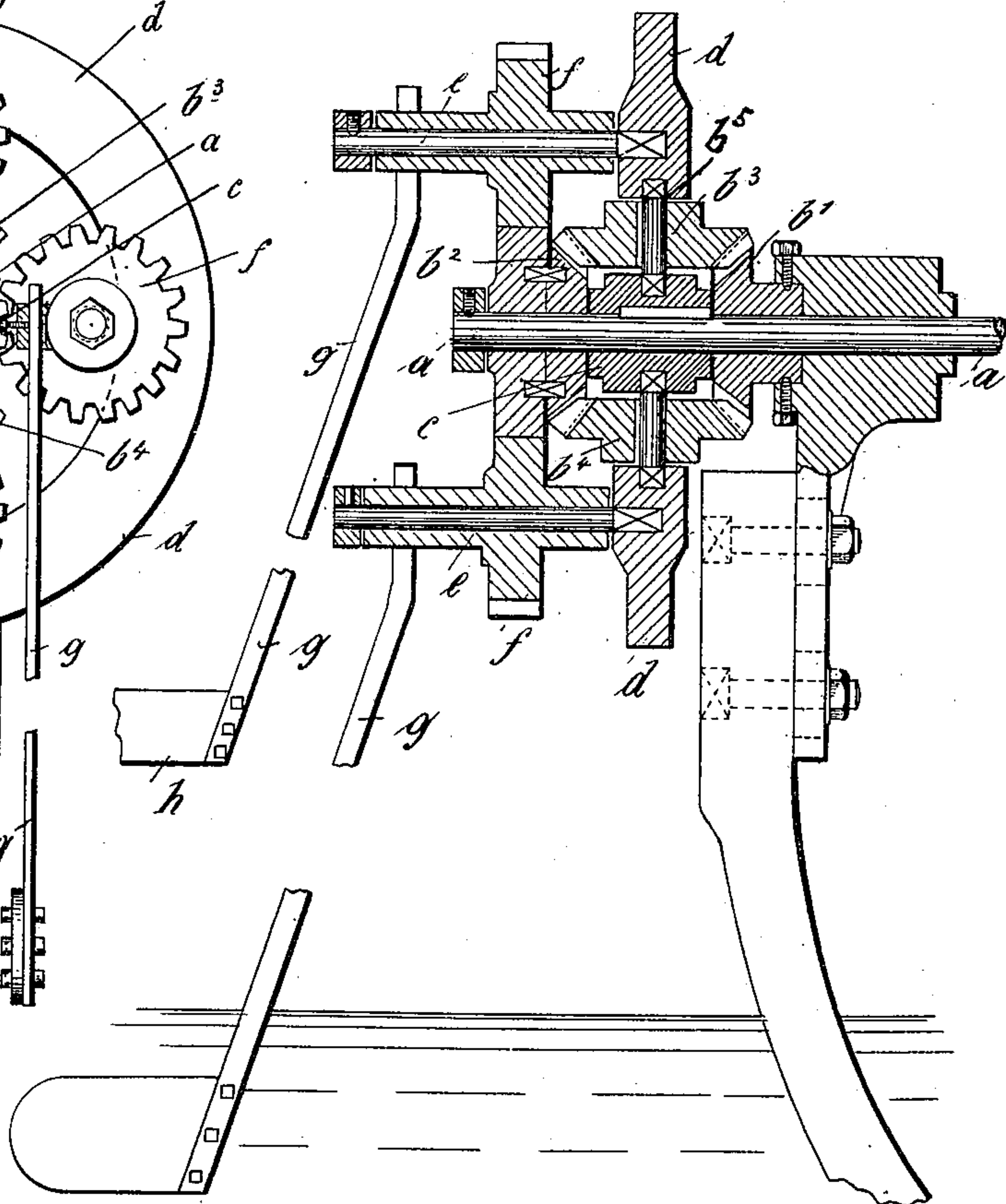
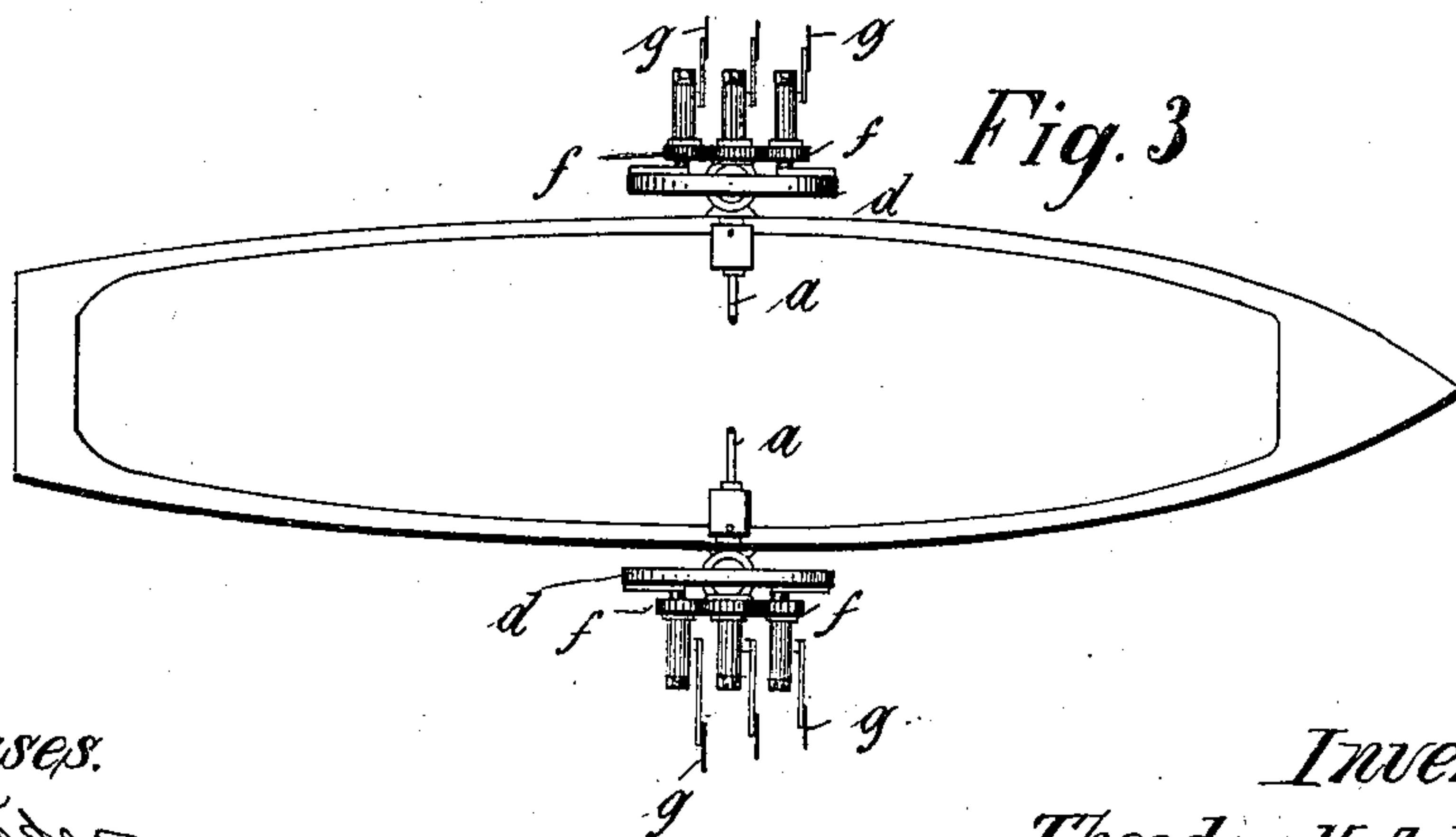


Fig. 3



Witnesses.

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THEODOR HUGO AUGUST LUKATIS, OF BERLIN, GERMANY.

FEATHERING-BLADE FOR PADDLE-WHEELS.

SPECIFICATION forming part of Letters Patent No. 627,860, dated June 27, 1899.

Application filed August 1, 1898. Serial No. 687,426. (No model.)

To all whom it may concern:

Be it known that I, THEODOR HUGO AUGUST LUKATIS, a subject of the King of Prussia, Emperor of Germany, residing at Berlin, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Driving Gears or Mechanism for Water Velocipedes or Vehicles, (for which I have applied for patents in Germany June 2, 1898; in Austria June 30, 1898; in Hungary July 2, 1898; in France July 2, 1898; in Belgium July 2, 1898; in Switzerland June 29, 1898; in Sweden July 4, 1898; in Norway July 1, 1898; in Denmark June 29, 1898; in England July 4, 1898, and in Portugal July 5, 1898,) of which the following is a specification.

This invention relates to an improved driving gear or mechanism for vehicles propelled on water, which said gear effects by a simple yet highly ingenious arrangement that the paddles will always retain the same vertical position in all their phases of movement. It is thus evident that—for instance, in the case of river-vessels propelled with a comparatively small amount of power—a comparatively high useful or working effect of the driving mechanism, and consequently a rapid and suitable propelling movement of the ship, is attained. A driving-gear of this kind is represented in the accompanying drawings, in which—

Figure 1 is a view in side elevation, partly in section. Fig. 2 is an end view in section, and Fig. 3 is a plan view of a vessel fitted with such driving mechanism.

Throughout the views similar parts are marked with like letters of reference.

Mounted on or in one with the bearing of the driving-shaft a , adapted to be actuated by hand, pedal, or motor, is a bevel-wheel b' , and mounted on the shaft a is a sleeve c . Meshed with the bevel-gear b' are two bevel-gears b^3 and b^4 , upon opposite sides of the shaft a , said gears being equal and having their axes at right angles to the shaft a . A separate and similar bevel-gear b^2 on the shaft a is meshed with both the bevel-gears b^3 and b^4 . The gears last named are loosely mounted upon studs b^5 , which project from the sleeve c . The gear b^2 is loose on the shaft a , the arrangement being such that when the shaft

a is rotated the wheel b^2 will be revolved in the same direction by b^3 b^4 . The sleeve c is in a plane lying vertically to the shaft a , firmly connected with a disk d , and with said disk d several axles e , passing parallel to the shaft a , are firmly connected, upon which cog-wheels f are loosely mounted. These cog-wheels are on their part acted upon by the bevel-wheel b^2 , this being preferably done through the intermediary of a cog-wheel b^6 , connected with said bevel-wheel, so that according to the chosen diameters of all the above wheels a corresponding transmission takes place, and the paddle-stems g , rigidly connected with the hubs of the cog-wheels f , will admit of a vertical immersion and emersion of the paddles h during all phases of rotation of the shaft a , so that the said paddles will develop their full working effect in the most advantageous manner.

It may be especially pointed out that, contrary to paddle-wheels as at present employed, this driving-gear permits of the depth or amount of immersion of the paddles h being kept constant in spite of the draft of the vessel, which varies according to load, consumption of coal, and so forth, this being easily obtained by making the paddle-stems g adjustable in height—for instance, by set-screws i . It is, moreover, of the highest advantage for the actuation and utilization of the vessel that in using this driving-gear the number of paddles h may be small and that the number of revolutions of the working shaft a may be as high as possible, which admits of a compact and economical motor being used.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a driving mechanism for water-vehicles, the combination with a driving-shaft of a fixed and a loose bevel-gear, two intermediate bevel-gears on opposite sides of the shaft their axes at right angles thereto, a support for said gears rigid on the shaft, a series of spur-gears arranged around the said shaft, a spur-gear loose on the shaft and rigidly connected to the loose bevel-gear, said central gear meshing with the spur-gears around the shaft, a disk revolving with the shaft to which the journal-supports of the latter spur-gears

are connected, and paddles having stems rigidly and eccentrically connected to the hubs of said spur-gears, substantially as described.

2. In a mechanism for driving water-vehicles, the combination with a driving-shaft of bevel-gears one of which is rigid and the other loose on said shaft, intermediate bevel-gears on opposite sides of said shaft, a support for the bearings of said gears rigid on the shaft, a disk carried by said support, a series of spur-gears arranged around the shaft and having their journals on said disk, a central spur-gear rigidly connected to the loose bevel-gear, and meshed with the spur-gears around the driving-shaft and paddles having stems which are rigidly connected to the hubs of said spur-gears, substantially as described.

3. In a mechanism for driving water-vehicles, the combination with a driving-shaft of

bevel-gears one fast and the other loose thereon, intermediate bevel-gears meshed with them on opposite sides of said shaft, a spur-gear connected to the loose bevel-gear, a support carried by the driving-shaft and sustaining the bearings for the intermediate bevel-gears, a disk connected to said support, a series of spur-gears meshed with the spur-gear on the shaft and having support on said disk, and paddles having stems which are connected to the hubs of the latter spur-gears and longitudinally adjustable thereon, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

THEODOR HUGO AUGUST LUKATIS.

Witnesses:

HENRY HASPER,
C. H. DAY.