

J. BANG & P. NEIL.
MOTOR.

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Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

916,969.

Fig. 1.

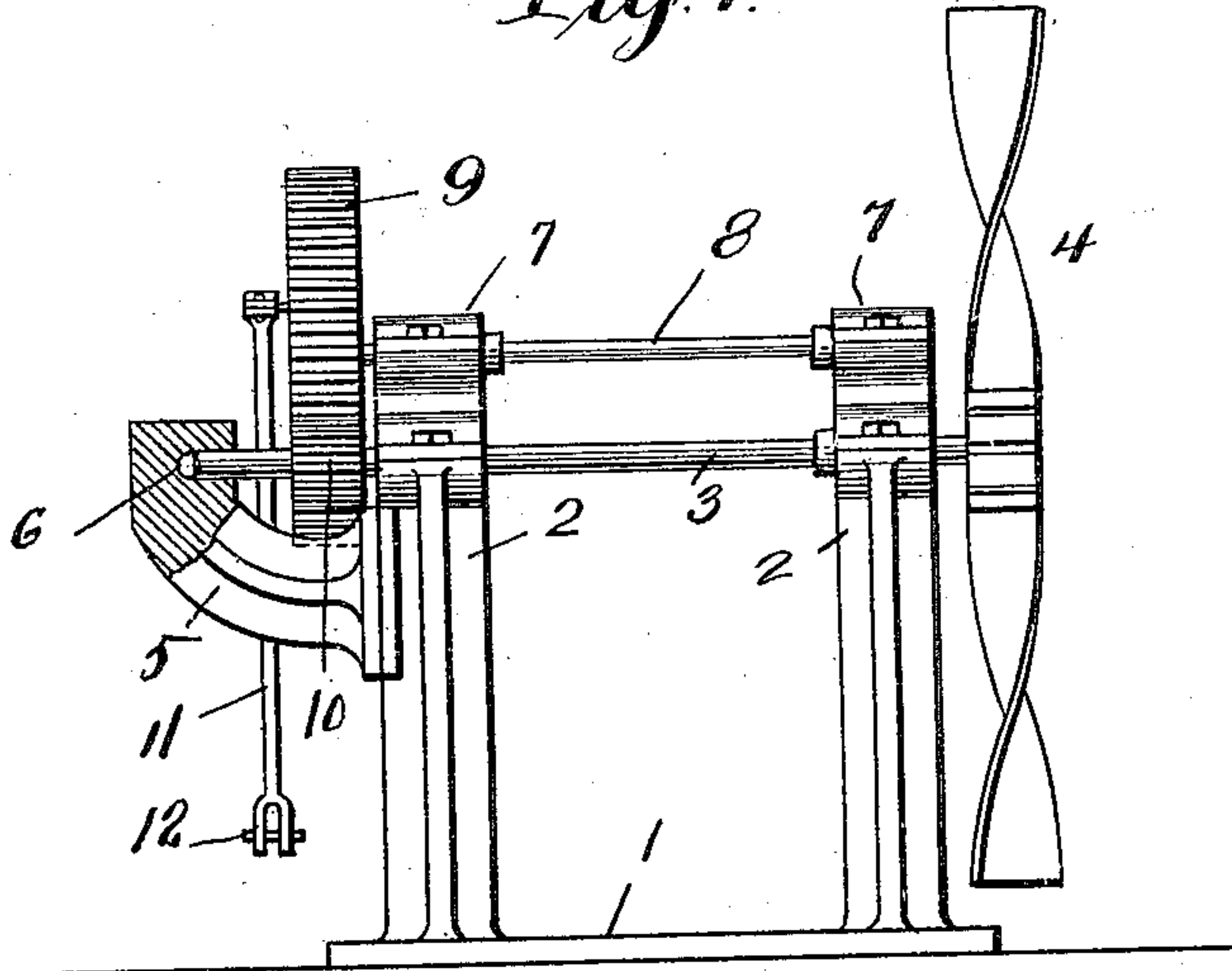


Fig. 3.

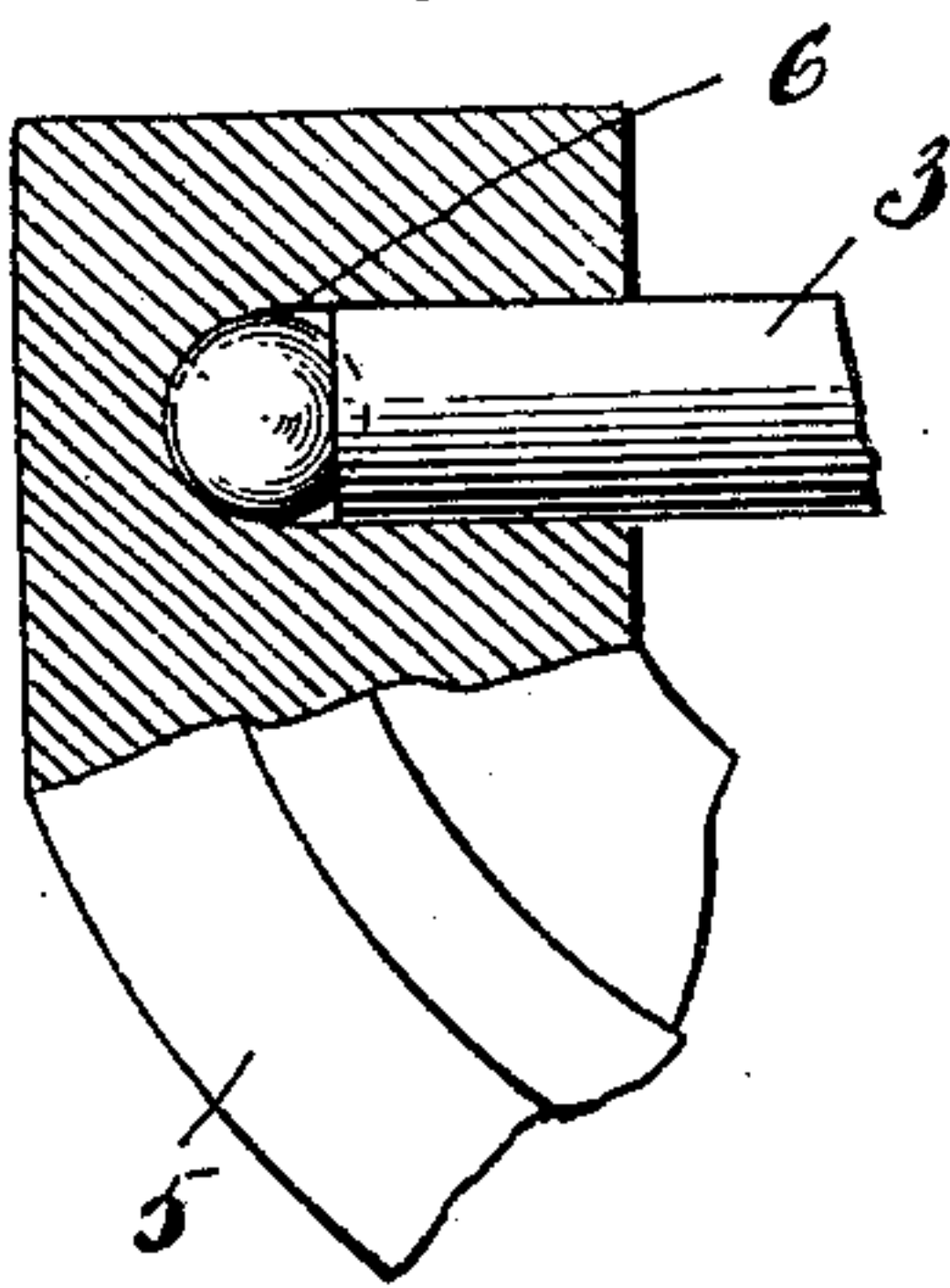
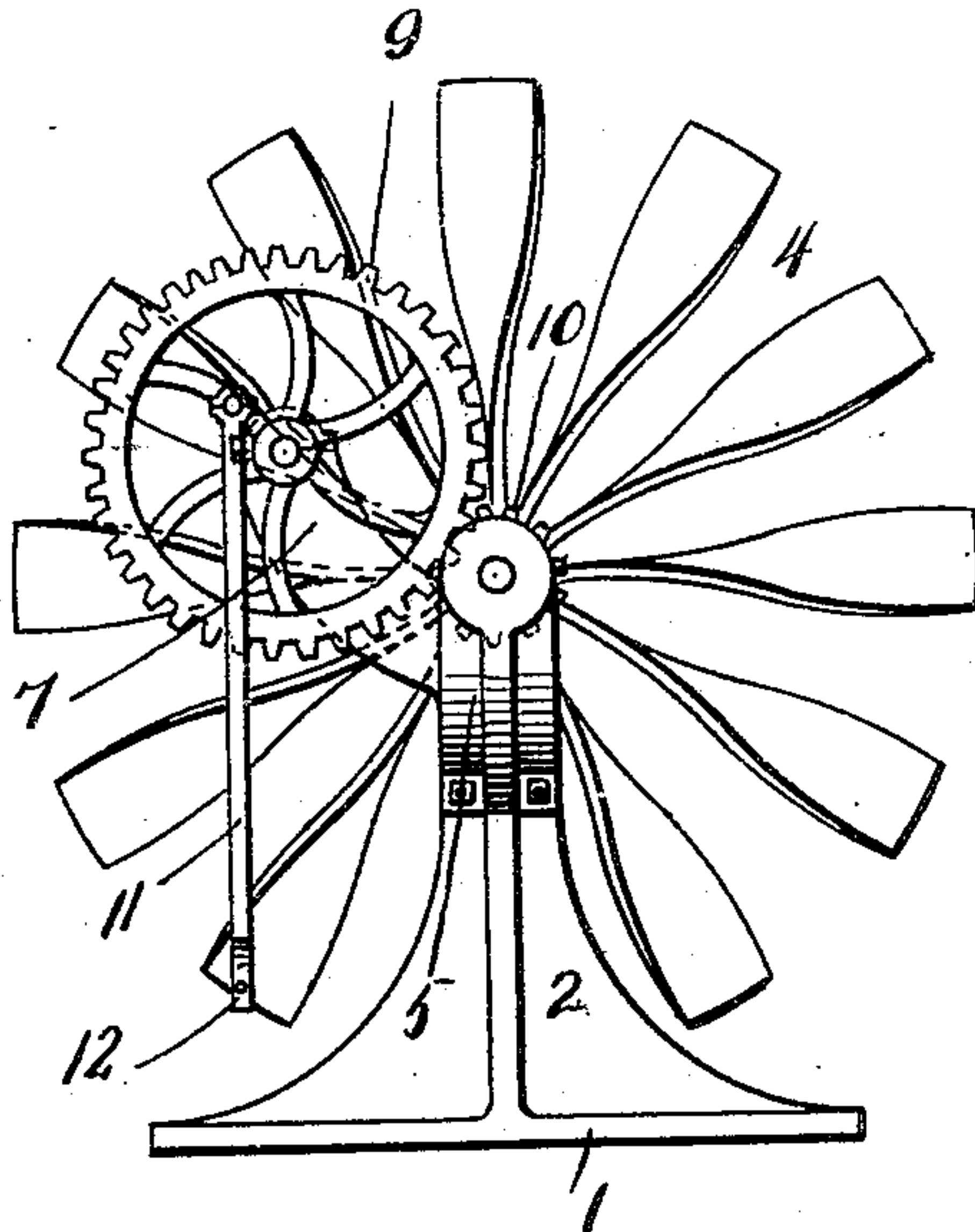


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES BANG, OF CALIFORNIA, AND PETER NEIL, OF SUTERVILLE, PENNSYLVANIA.

MOTOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, (1) JAMES BANG and (2) PETER NEIL, citizens of the United States of America, residing at (1) California, and State of Pennsylvania, have invented certain new and useful Improvements in Motors, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to motors, and the invention has for its object to provide a simple and inexpensive motor for operating pumps.

Our invention aims to provide a pump particularly designed for use in mines where a draft or blast of air can be utilized for driving a fan, which through the medium of a train of gears operates a pump, either for removing water from a mine or forcing air and water throughout the mine.

With the above, and other objects in view, which will more readily appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts to be hereinafter more fully described and then specifically pointed out in the appended claims.

Referring to the drawing forming part of this specification, like numerals of reference designate corresponding parts throughout the several views, in which:

Figure 1 is an elevation of a motor constructed in accordance with our invention, Fig. 2 is a rear elevation of the same, Fig. 3 is an enlarged detail sectional view of a thrust bearing used in connection with a motor, Fig. 4 is an elevation of a motor illustrating a modified form of construction, Fig. 5 is a plan of the same, showing the cap of bearing 5 removed.

To put our invention into practice, we construct our improved motor of a base plate 1 having reinforced bearings 2 for a driven shaft 3 said shaft upon its one end being provided with a bladed wind wheel or fan 4 having flat twisted blades 25 extending radially from the hub 26. The opposite end of said shaft is journaled in a bracket, 5, provided with a thrust bearing 6 of a conventional form, said bearing also serving as an additional support for the power shaft.

The bearings 2 are provided with outwardly extending brackets 7 in which is journaled a shaft 8, said shaft carrying a large spur wheel 9 adapted to mesh with a

small spur wheel 10, mounted upon the shaft 3 intermediate the bearings 2 and the bracket 5. Connecting with the spur wheel 9 is a pitman 11, the lower end 12 of which is adapted to be connected to the piston of an ordinary pump.

In Figs. 4 and 5 of the drawings, we have illustrated a motor wherein the brackets 7 are dispensed with and the end of the shaft 3 provided with a beveled gear wheel 14, said beveled gear wheel meshing with a gear wheel 15, mounted upon a shaft 16 journaled in the bracket 5 and the bearing 17 located in close proximity to the base plate 1. The end of the shaft 16 is provided with a spur wheel 18 meshing with a spur wheel 19 mounted upon a shaft 20, said shaft representing the shaft of a rotary pump, dynamo or a piece of machinery used within a mine.

In either the preferred or modified form of construction, the operation is practically the same, the motor being located within a mine where a draft or blast of air can impinge the fan or spiral bladed wheel 4 and rotate the same and through the rotary movement of said wheel or fan, impart a similar movement to another shaft or a vertically reciprocating movement to a pitman.

It is apparent from the illustration of our invention that we have devised a portable motor that can be used for numerous purposes within a mine, and while we have herein described and illustrated the two forms of transmitting motion from an air driven wheel, it is obvious that various mechanical equivalents can be readily employed.

Such changes in the arrangement and minor details of our invention as are permissible by the appended claims, may be resorted to without departing from the spirit and scope of the invention.

What we claim and desire to secure by Letters Patent, is:—

1. A motor for mines consisting of a base plate, standards, mounted thereon bearings carried by said standards, a power shaft journaled in said bearings, a wheel formed of a plurality of separated spiral blades radially mounted upon a hub carried by one end of said power shaft, a bracket carried by one of said standards and having a thrust ball-bearing for said shaft, brackets carried by said standards, a driven shaft journaled in the said brackets, a large spur wheel mounted upon one end of said driven shaft

a small spur wheel, said large gear wheel being adapted to mesh therewith, said small spur wheel being mounted upon the above mentioned power shaft between said thrust bearing and the adjacent standard, and a pitman rotatably connecting said large spur wheel.

2. A motor for mines consisting of a base plate and standards mounted thereon, bearings carried by said standards, a power shaft journaled in said bearings, a wheel formed of a plurality of separated spiral blades radially mounted upon a hub carried by one end of said power shaft, a bracket carried by one of said standards and a thrust ball bearing for said shaft, supporting means and a

driven shaft journaled therein, a large spur wheel mounted upon one end of said driven shaft, a small spur wheel mounted on the above-named power shaft between said thrust bearing and the adjacent standard, said spur wheels adapted to intermesh, and a pitman pivotally connected with said large spur wheel.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES BANG.
PETER NEIL.

Witnesses:

WALTER H. HALL,
A. N. JORDAN.