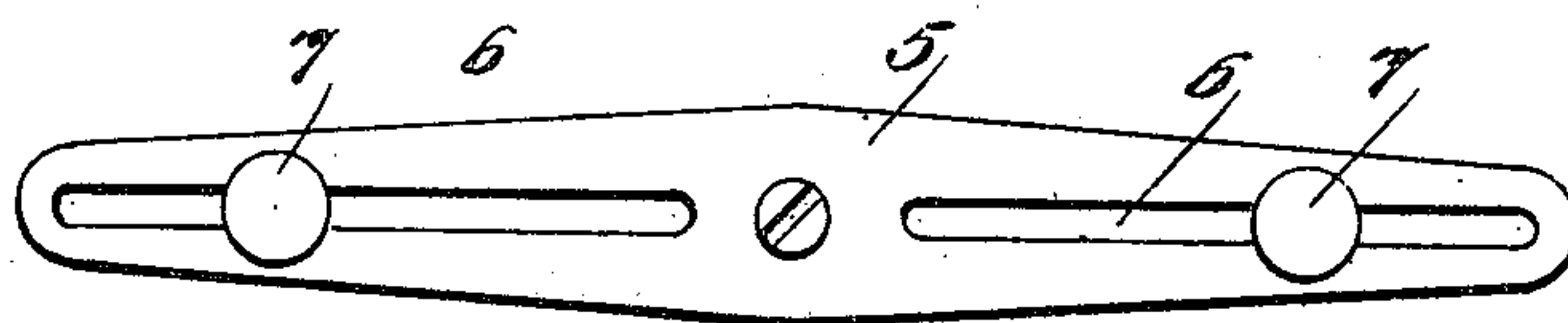
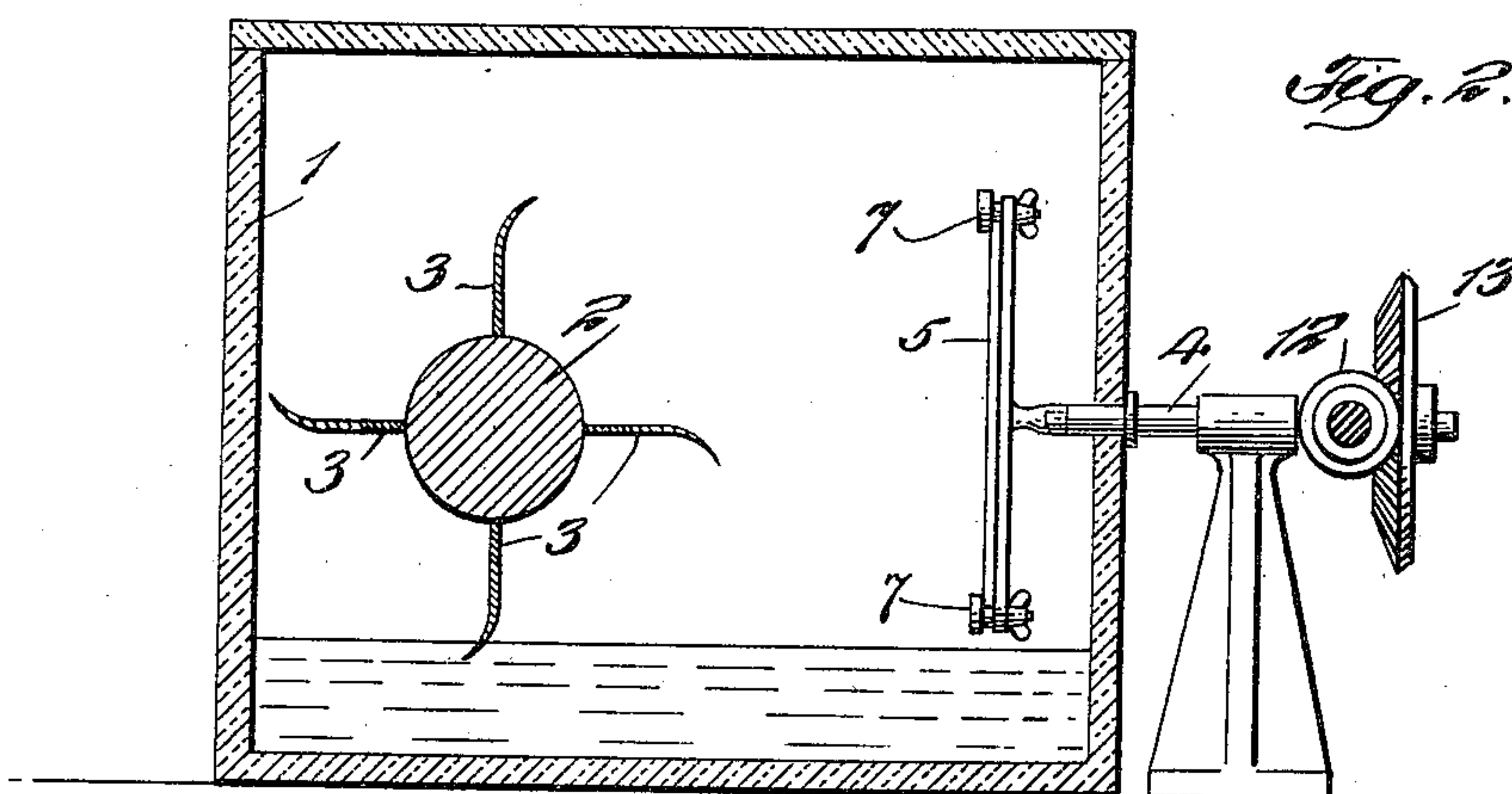
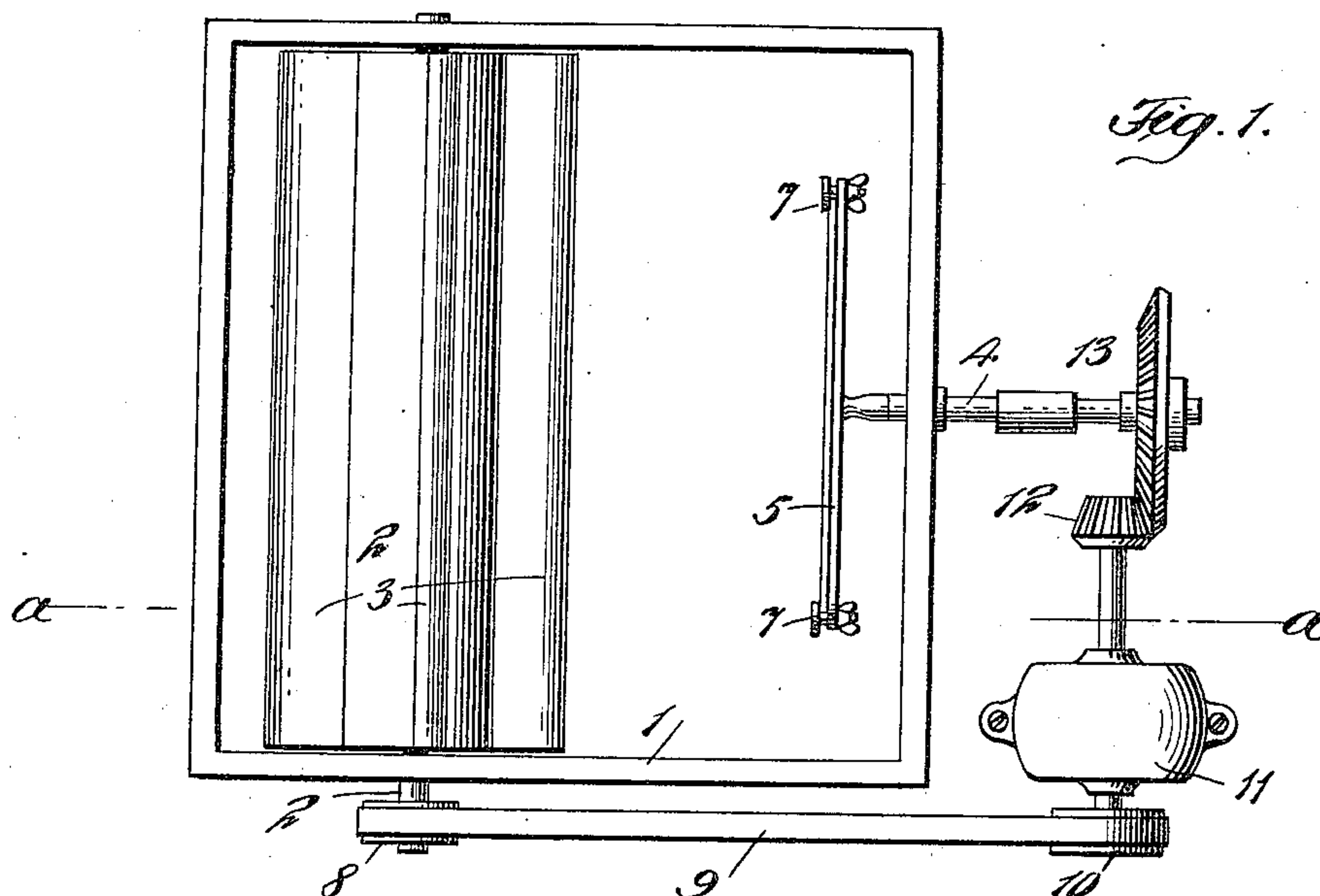


C. P. BROWNING.
ETCHING MACHINE.
APPLICATION FILED APR. 1, 1910.

993,503.

Patented May 30, 1911.



WITNESSES:
Julius H. [Signature]
London V. Lyons.

INVENTOR
Clarence P. Browning
BY *A. M. Pierce.*
ATTORNEY

UNITED STATES PATENT OFFICE.

CLARENCE P. BROWNING, OF BROOKLYN, NEW YORK.

ETCHING-MACHINE.

993,503.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed April 1, 1910. Serial No. 552,821.

To all whom it may concern:

Be it known that I, CLARENCE P. BROWNING, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Etching-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates especially to etching machines for the use of photo-engravers, and has for its object the provision of a machine which will effectually prevent undercutting, or the production of a shoulder on one side of the raised surface, producing a plate having clean cut, even lines.

To attain the desired end, my invention consists in certain novel and useful combinations or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter first fully described and then pointed out in the claims.

In the drawing, Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a vertical, sectional view thereof at line *a-a* of Fig. 1. Fig. 3 is an enlarged, plan view of the plate holder removed from the machine.

Similar numerals of reference, wherever they occur, indicate corresponding parts in all the figures.

1 is an acid-proof receptacle, made of any approved material.

2 is a shaft rotatably mounted in the side walls of the receptacle, and provided with blades 3, adapted and arranged to enter the acid bath, as particularly illustrated in Fig. 2 of the drawing.

4 is a shaft mounted in the side wall of the receptacle 1 at a right angle to the shaft 2, and bearing a removable head or plate holder 5. This plate holder is slotted as at 6, and provided with plate clamps 7. The shaft 2 bears a driving pulley 8, connected by a band 9 to a pulley 10 upon the shaft of a motor 11. The shaft of the motor bears a bevel gear 12 arranged to mesh with a corresponding gear 13 upon the shaft 4.

In use, the plate to be etched is secured in place upon the holder 5, the acid within the receptacle 1 being located below any point

where the plate to be etched can reach it. When movement is imparted to the mechanism, the acid is thrown by the blades 3 against the plate, flowing down the surface thereof, and at the same time the plate is slowly revolved, thus insuring a uniform action of the acid upon all parts thereof, preventing any possibility of undercutting or the formation of a shoulder on one side of the raised surfaces of the completed plate, as would be the case if the plate, or any part of it remained at rest and the acid be applied continuously to one spot, thus producing an evenly etched plate, this invention being an improvement upon the etching apparatus shown and described in Letters Patent No. 721,445 issued February 24, 1903, to John A. Holmstrom.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is:

1. An etching apparatus consisting of an acid-proof receptacle to contain the etching fluid, a rotary spreader in said receptacle for throwing fluid in spray onto the surface of the object to be etched, and a rotatable support for the object to be etched.

2. An etching apparatus consisting of an acid-proof receptacle to contain etching fluid, a rotary spreader mounted on a horizontal axis in the receptacle and provided with blades adapted to dip in the body of fluid in the receptacle, and a rotary support mounted in the receptacle for the object to be etched.

3. An etching apparatus consisting of an acid-proof receptacle to contain etching fluid, a support for holding the object to be etched rotatably mounted in the receptacle, a rotatable spreader in said receptacle which throws the etching fluid in the form of a spray on the surface of the object being etched, and means for rotating the spreader and object holder.

In testimony whereof I hereto affix my signature in presence of two witnesses.

CLARENCE P. BROWNING.

Witnesses:

A. M. PIERCE,
EVA HODGE.