

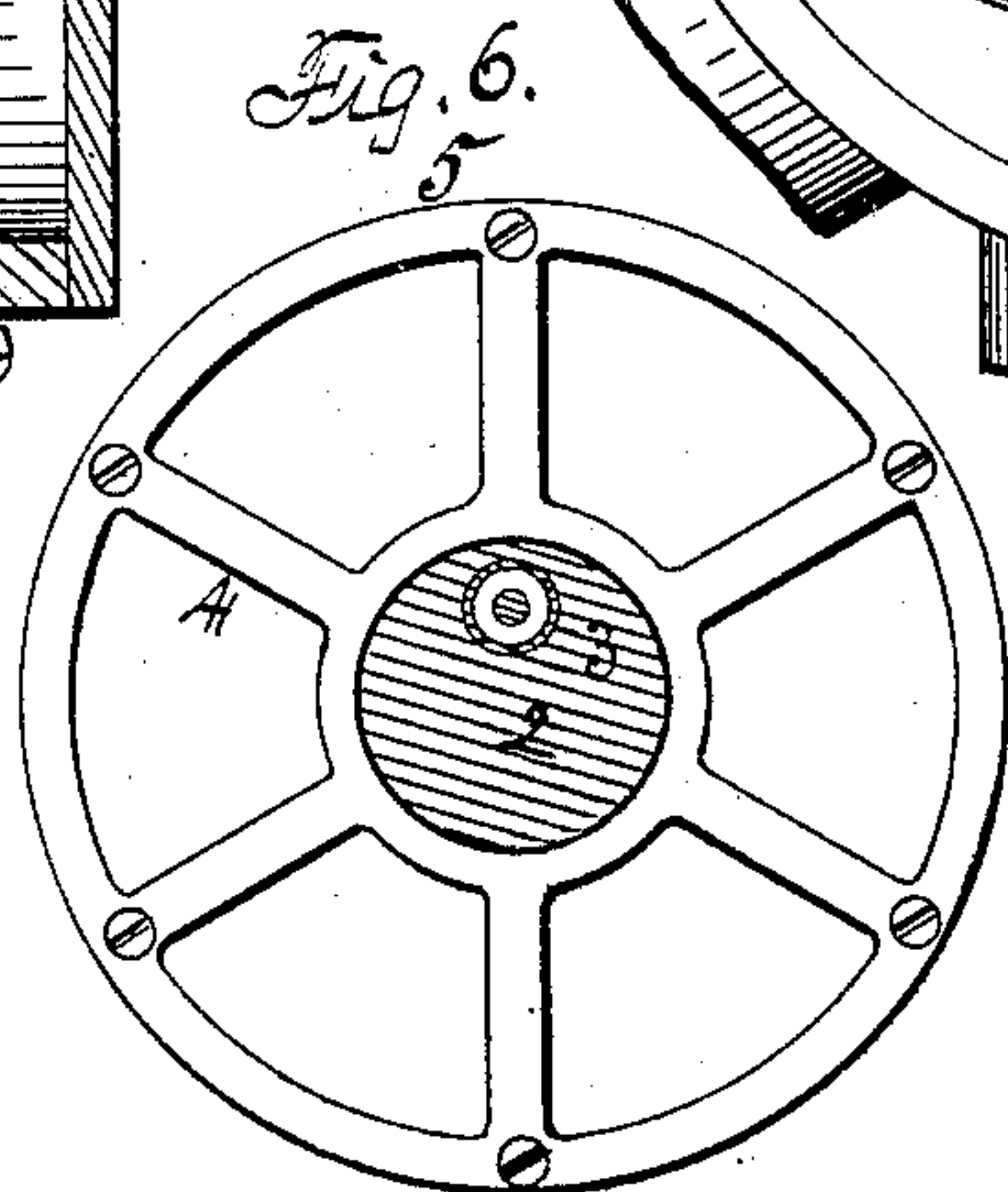
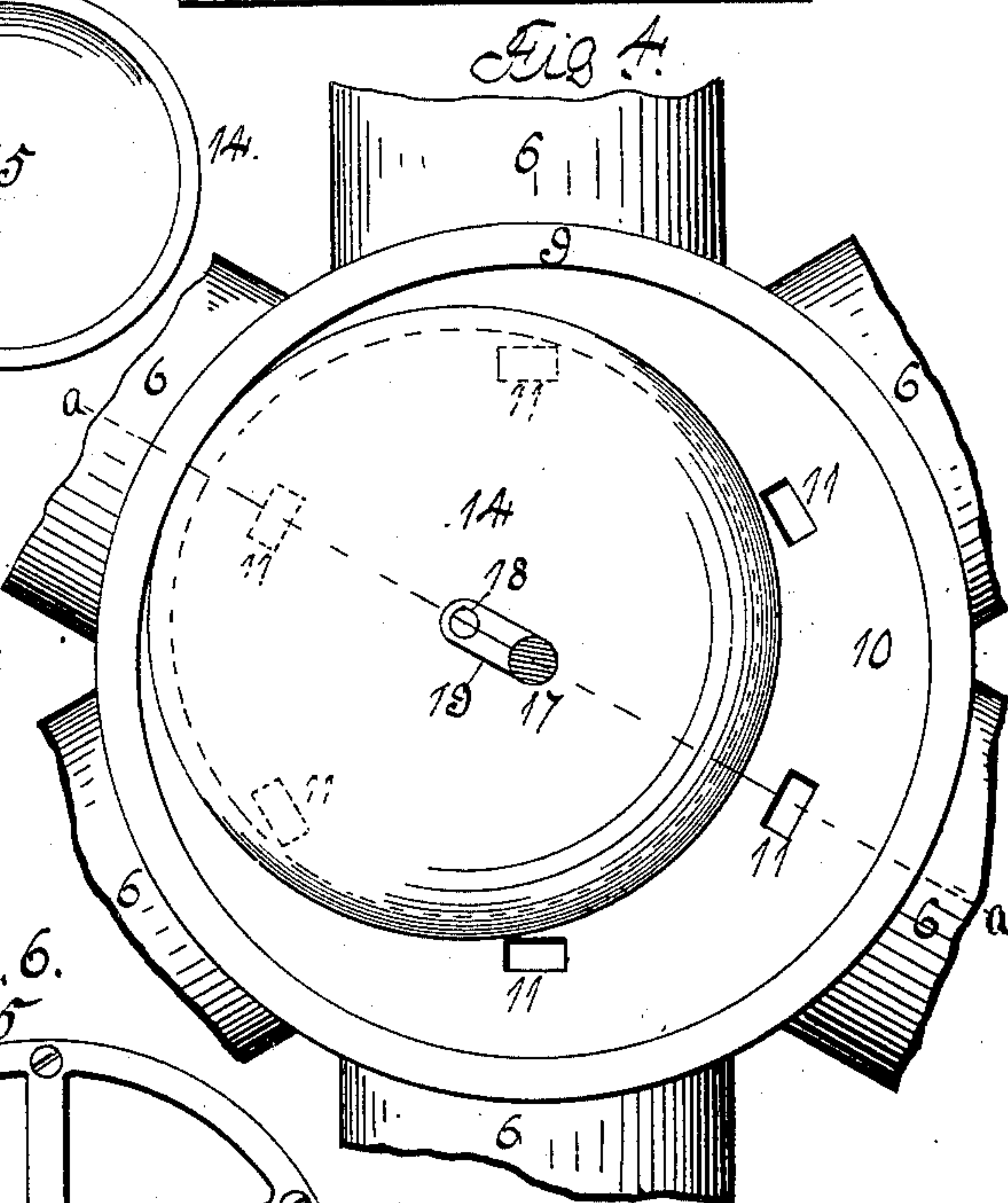
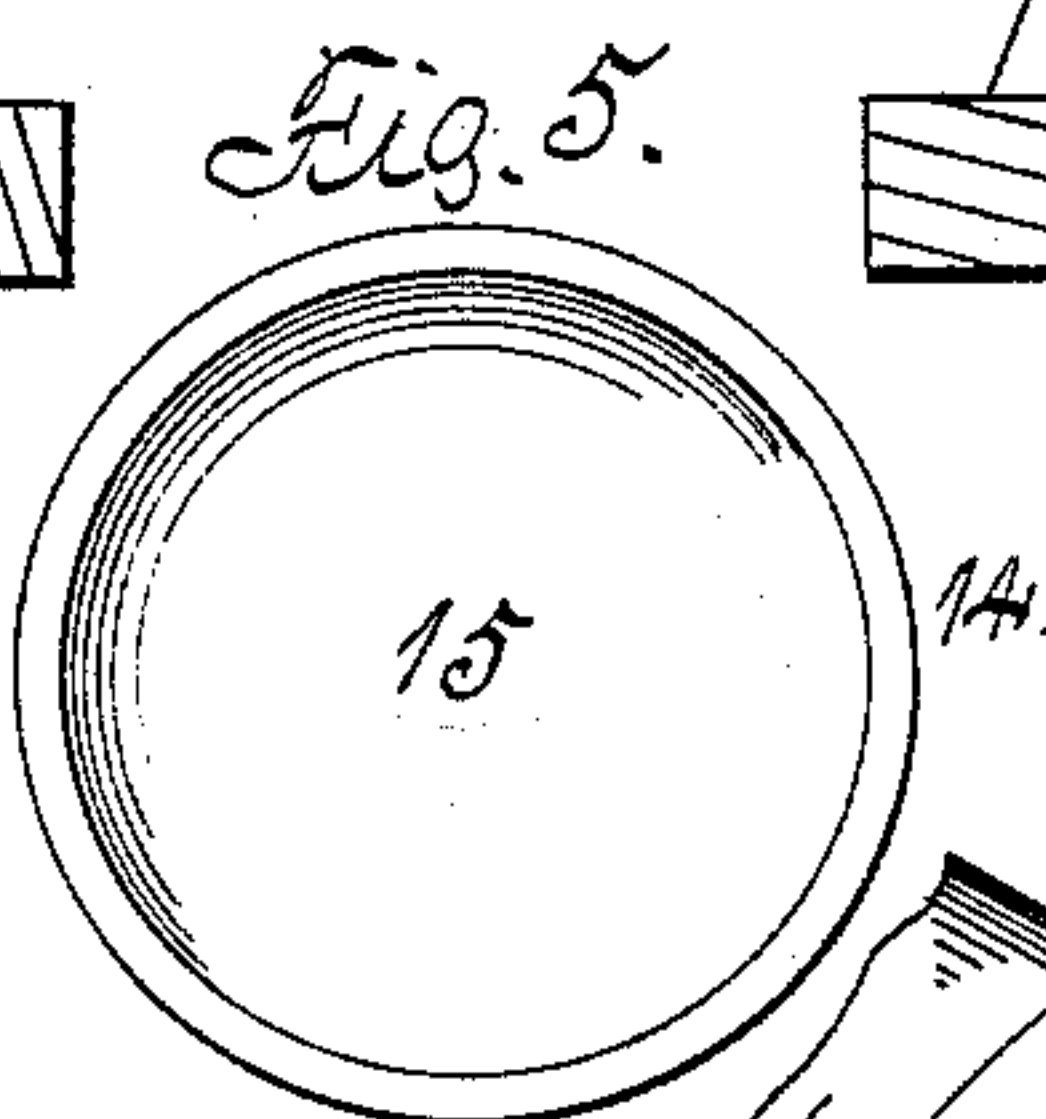
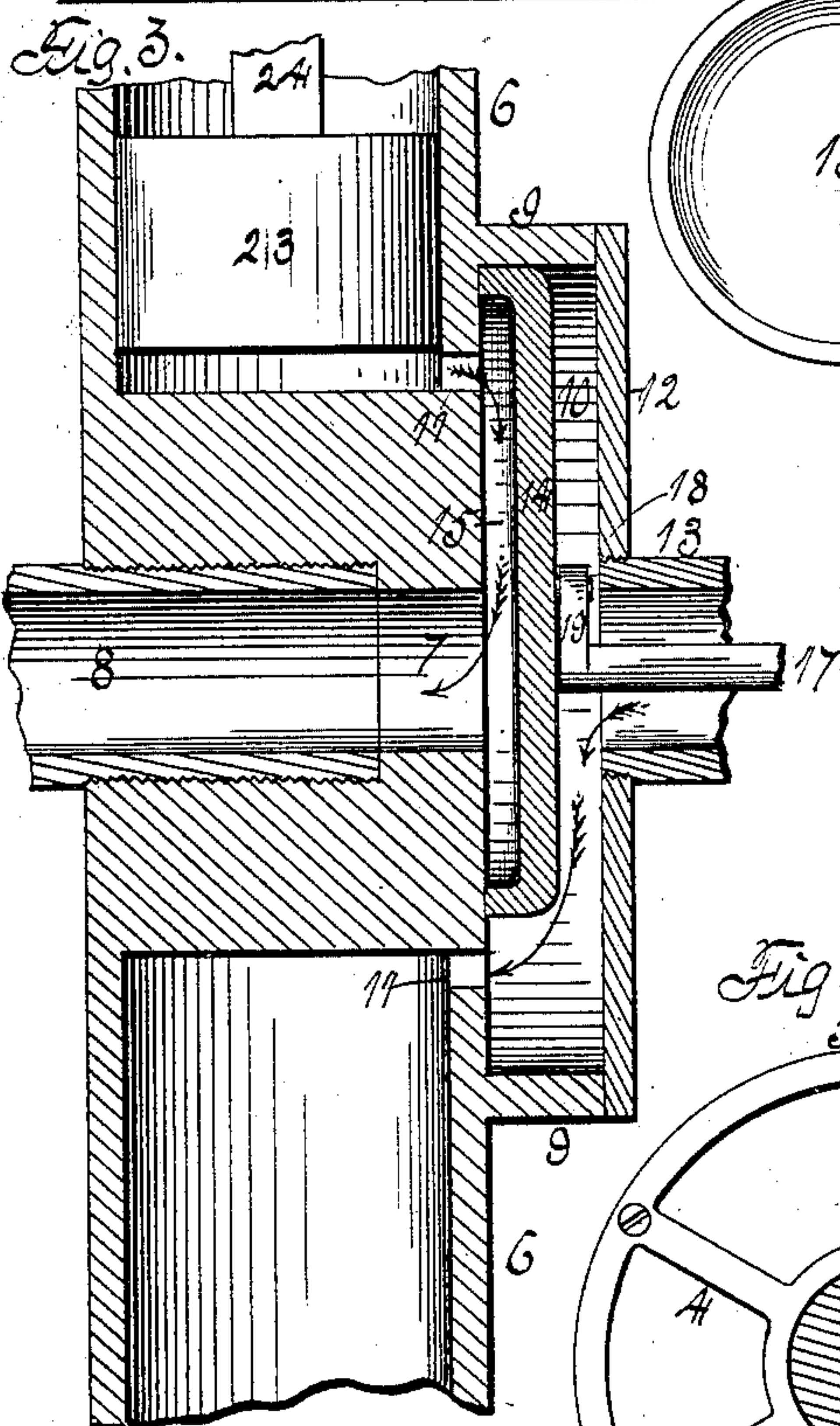
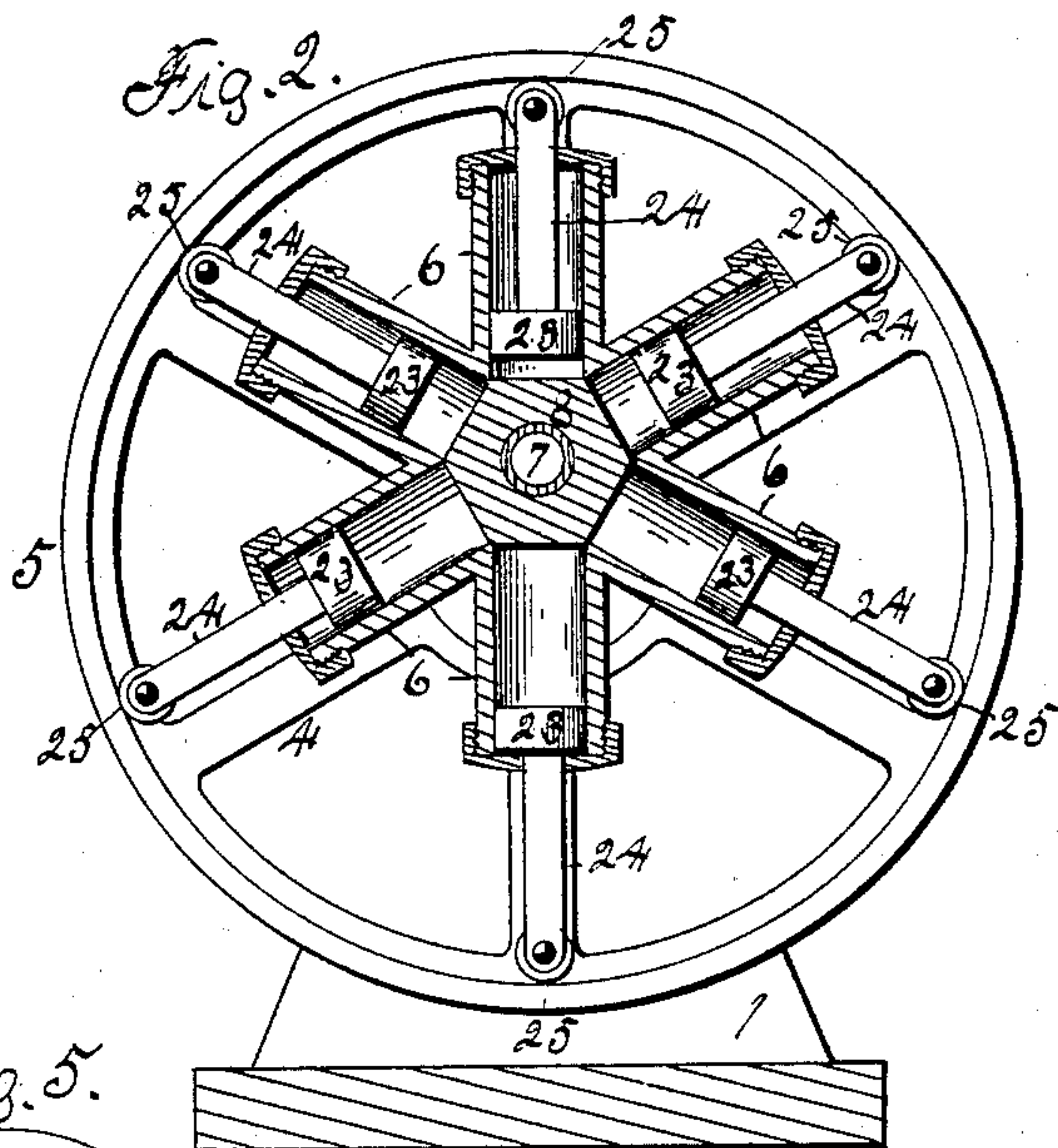
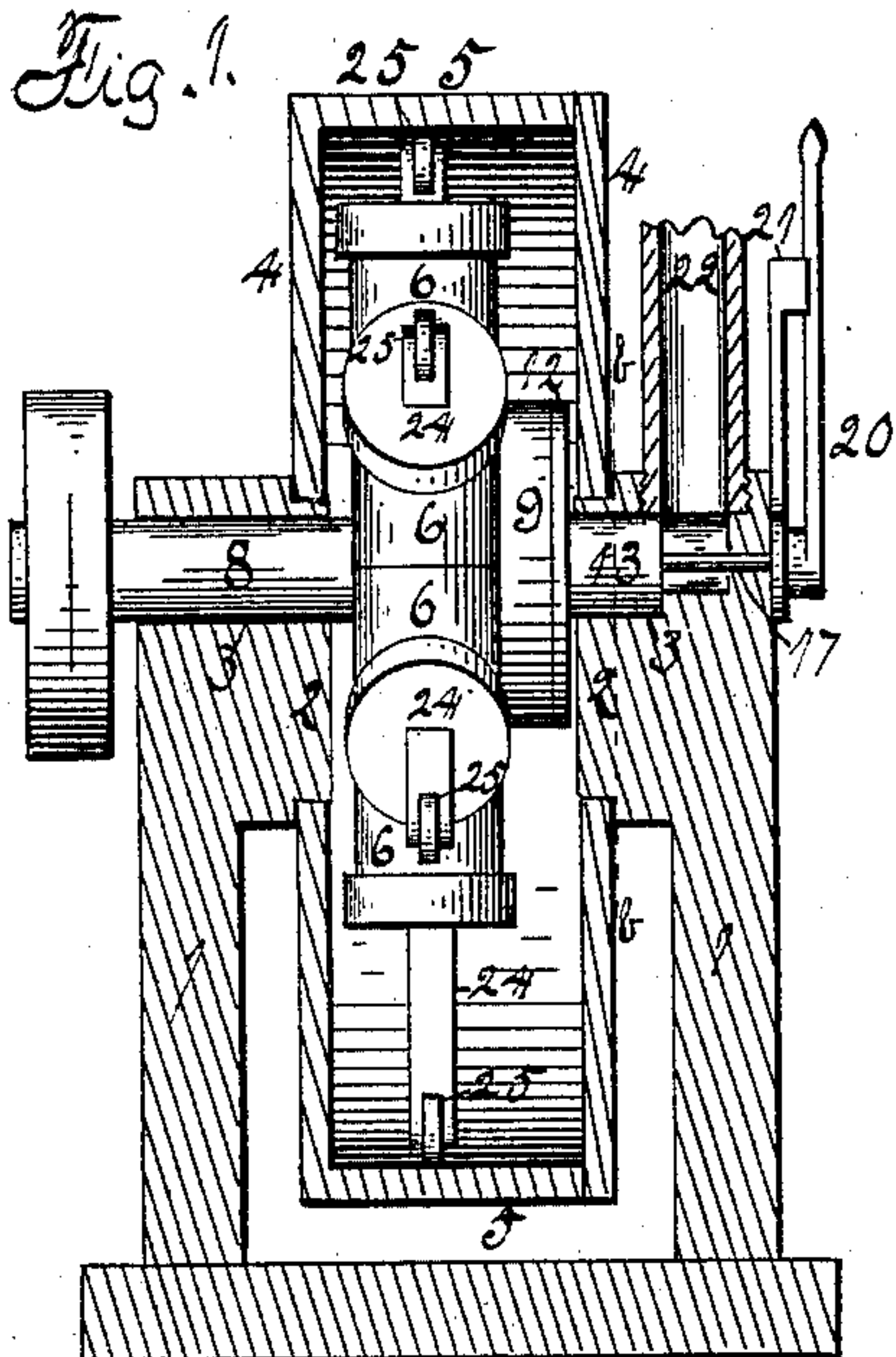
No. 609,808.

Patented Aug. 30, 1898.

C. A. HOLCOMB.
ROTARY STEAM ENGINE.

(Application filed Mar. 18, 1897.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

CLIFFORD A. HOLCOMB, OF BELOIT, WISCONSIN, ASSIGNOR OF ONE-HALF
TO PATRICK H. CRAHEN, OF SAME PLACE.

ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 609,808, dated August 30, 1898.

Application filed March 18, 1897. Serial No. 628,226. (No model.)

To all whom it may concern:

Be it known that I, CLIFFORD A. HOLCOMB, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Rotary Steam-Engines, of which the following is a specification.

This invention relates to that class of steam-engines in which a series of steam-cylinders are located eccentrically within a rim against which the ends of the piston-rods run; and it consists of the cylinders thus mounted, so that the rim will revolve therewith a shaft connected to the cylinder, from which power can be derived.

It consists, further, of a disk valve so located with relation to the steam-ports that one half of the cylinders are admitting steam while the other half are exhausting steam and means for bodily moving the valve to reverse the movement of the cylinders.

In the accompanying drawings, Figure 1 is a vertical lengthwise section through the main supporting-frame and steam-cylinders. Fig. 2 is a vertical transverse section through the engine centrally of the steam-cylinders. Fig. 3 is a section on dotted lines *a*, Fig. 4. Fig. 4 is a face representation of the steam-chest and disk valve. Fig. 5 is an inner face representation of the disk valve. Fig. 6 is a vertical section on dotted lines *b*, Fig. 1.

The main supporting-frame is provided with standards 1, having their inner faces formed with enlargements 2, through which an opening 3 is formed above the center of the enlargement. Upon these enlargements is supported a casing composed of the ends 4 and rim 5, similarly joined together and fitted to revolve upon the enlargements.

Within the casing are located a series of steam-cylinders 6, radiating from a center and of the same length and diameter. The center or common point of junction of these cylinders is provided with an opening 7, and a tubular shaft 8 communicates with this opening and forms a passage for the exhaust-steam, also a support for the cylinders, and is supported by the main frame in a manner free to revolve. The opposite faces of the cylinders at their junction are fitted with a flange 9, forming a steam-chamber 10. Ports

11 are connected with the steam-cylinders and steam-chamber.

To the flange 9 of the steam-chamber is secured a cap 12, from which extends a tubular shaft 13, which is supported in one of the standards of the main frame.

A disk valve 14, having its inner face 15 cut away and located within the steam-chamber and in contact with the bottom of the chamber, is of such dimensions as to cover one-half of the number of ports.

A rod 17 is passed through one of the standards of the main frame and located within the tubular shaft 13, its inner end having a connection with the disk valve by a stud 18, extending from the center of the valve and supported by an arm 19, extending from the rod. To the outer end of this rod is connected a lever 20, movable in contact with the toothed segment 21, which holds the lever and valve in an adjusted position.

A steam-supply pipe 22 has a connection with one of the standards, through which steam is supplied to the steam-chamber through the tubular shaft 13.

Within each steam-cylinder is located a piston 23, having a piston-rod 24, in this instance of square form, guided by the outer end of the cylinder and supporting a roller 25. This roller lies in contact with the inside face of the rim 5.

Steam admitted to the steam-chamber will enter the ports not covered by the disk valve, and the ports covered by the valve will exhaust through the recessed face of the valve and through the tubular shaft 8, as shown by the arrow in Fig. 3. The pressure of the steam against the pistons will force them outward, causing the rollers to seek a greater distance from the cylinders, thereby imparting a rotary movement to the cylinders and casing against which the rollers press. While one half of the cylinders are taking steam the other half are exhausting steam.

By means of the hand-lever the disk valve can be moved bodily, so that the three cylinders taking steam will be over the dead-center and on each side thereof, thereby preventing the rotation of the cylinders, and by moving the valve past the dead-center the cylinders will revolve in the opposite direction. As

the cylinders revolve the valve will be rotated upon its support by frictional contact with the wall of the chamber, but always retaining its relative position with the ports.

5 I claim as my invention—

1. The combination of a supporting-frame having circular projections extending toward each other, a casing having ends supported by the projections, a shaft supported by the
10 frame eccentrically to the casing, a series of cylinders rotatable with the shaft radiating therefrom and located within the casing, each cylinder supporting a piston and each piston supporting a roller bearing against the inner
15 face of the casing, means for admitting steam to the cylinders and allowing it to exhaust therefrom, the cylinders and casing rotatable together in the same direction.

2. The combination of a supporting-frame,
20 a circular casing supported thereby, a shaft supported by the frame eccentrically to the casing, a series of cylinders rotatable

with the shaft and located within the casing, each cylinder supporting a piston and each piston supporting a roller bearing against
25 the inner face of the casing, the casing rotated by the action of the rollers against its inner face, means for admitting steam to the chamber and allowing it to exhaust therefrom.

3. In a steam-engine, the combination of a
30 steam-chamber, a disk valve located therein and rotatable in the same direction by contact with the cylinder-port face, and supported in a relative position with the ports, a rod hav-
35 ing an offset end on which the disk valve rotates and by which its position can be changed, the rod being independent of the power-shaft of the engine.

CLIFFORD A. HOLCOMB.

Witnesses:

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