

No. 638,914.

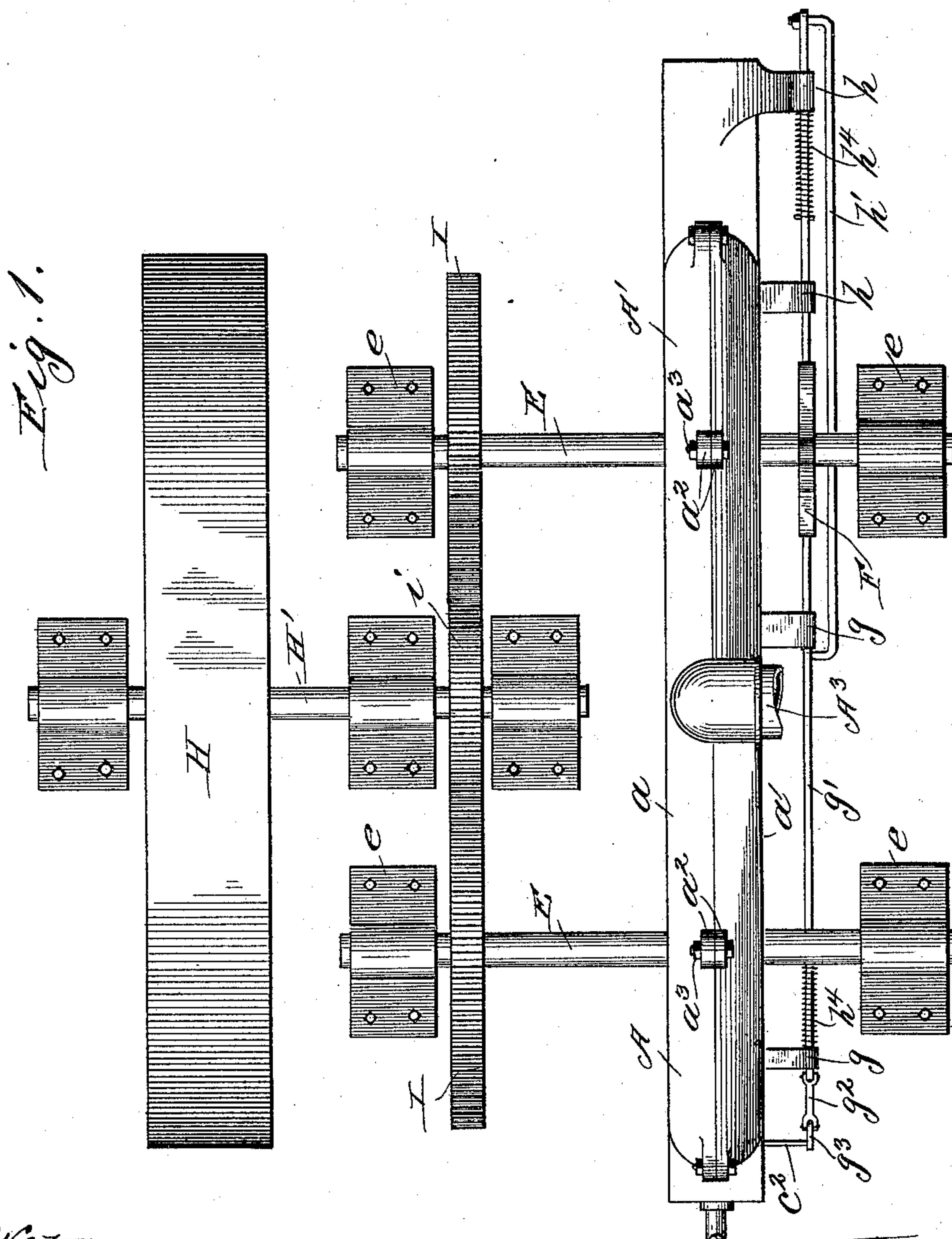
Patented Dec. 12, 1899.

J. DECKELMANN.
ROTARY ENGINE.

(Application filed June 19, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
R. J. Jaeger.
A. Gustafson.

Inventor:
John Deckelmann.
By Chas. Kilbourn, Atty.

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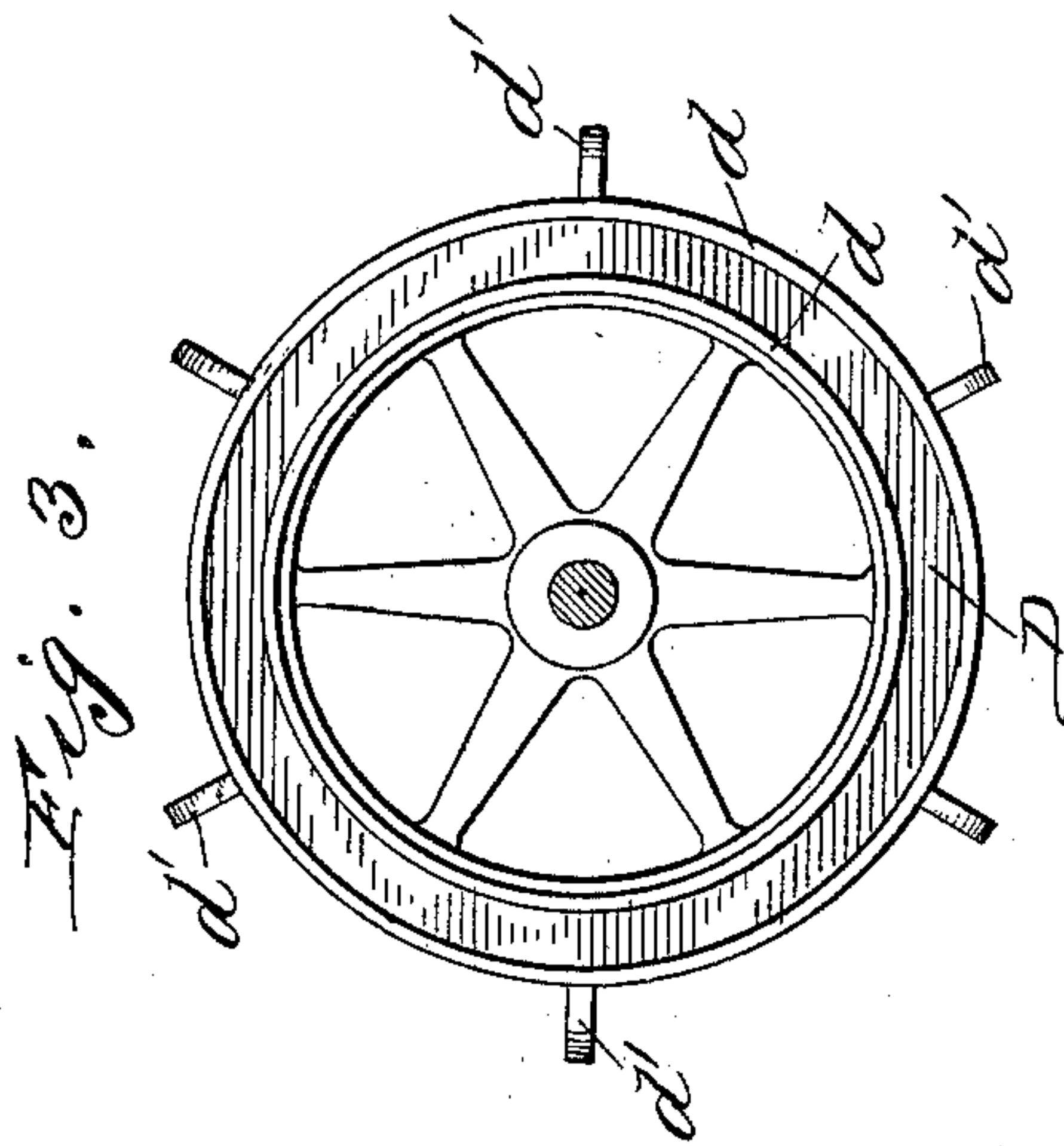
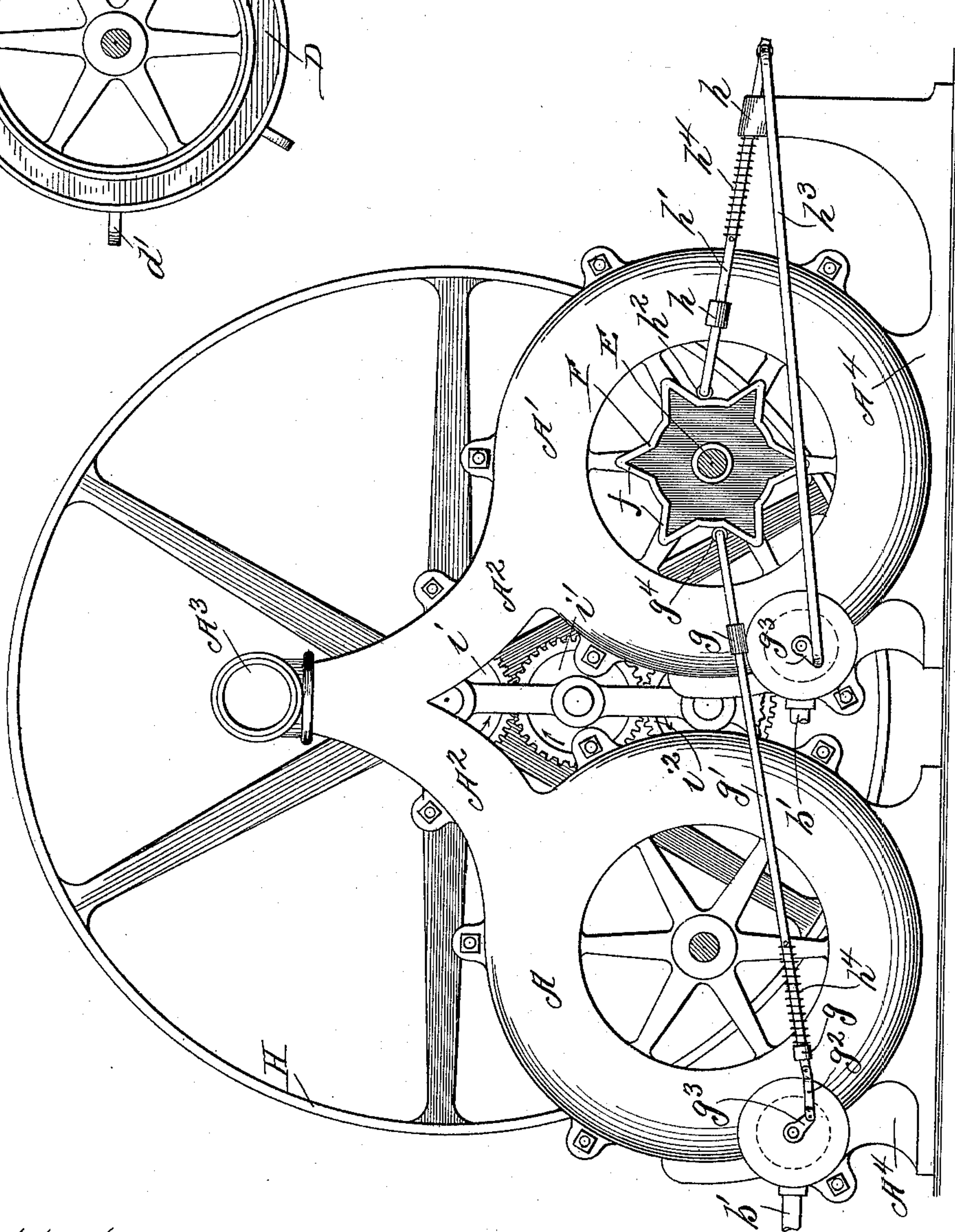


Fig. 2.



Witnesses:
R. J. Jaeger,
A. Gustafson.

Inventor:
John Deckelmann.
By Chas. C. Hillman, Atty.

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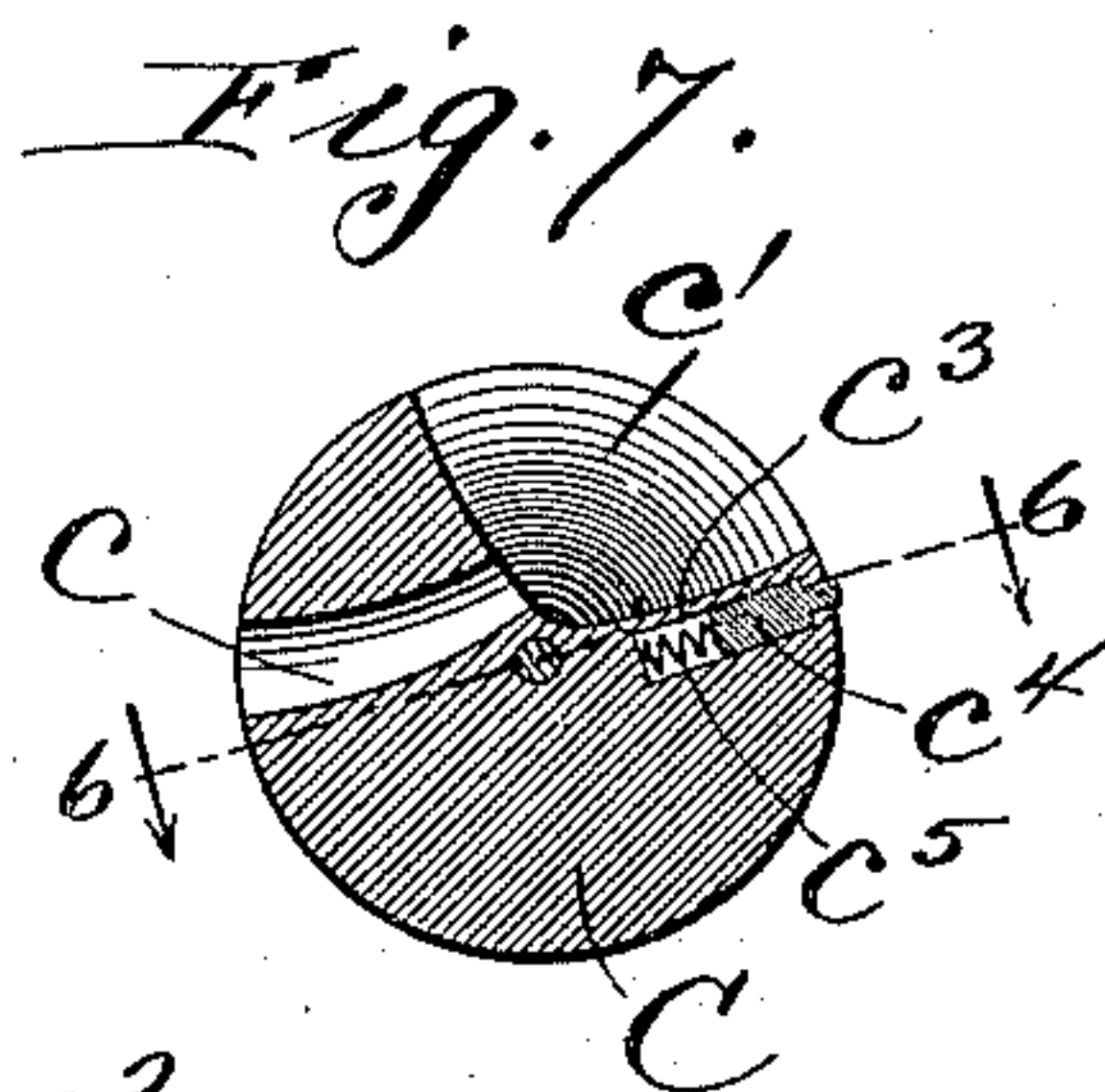
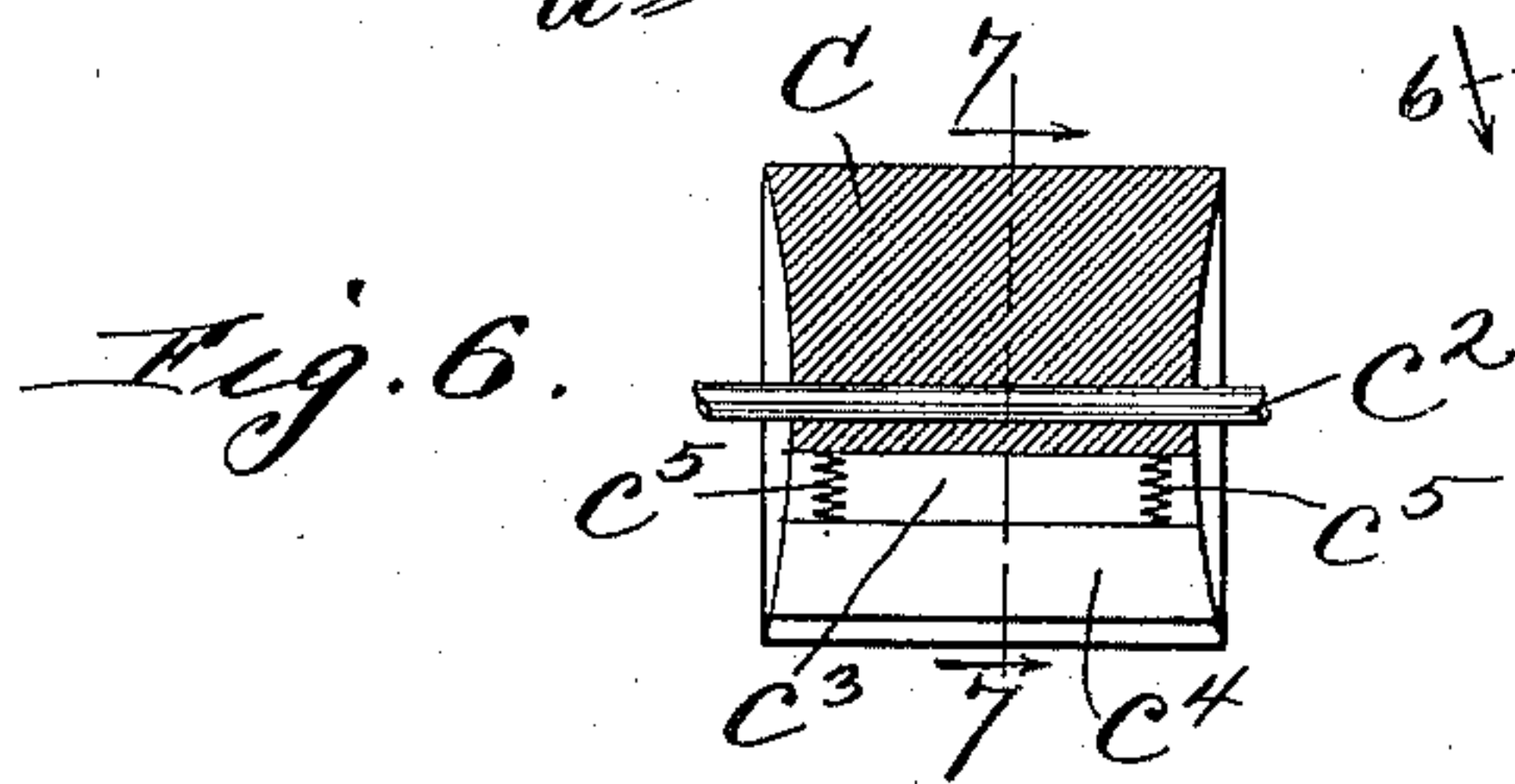
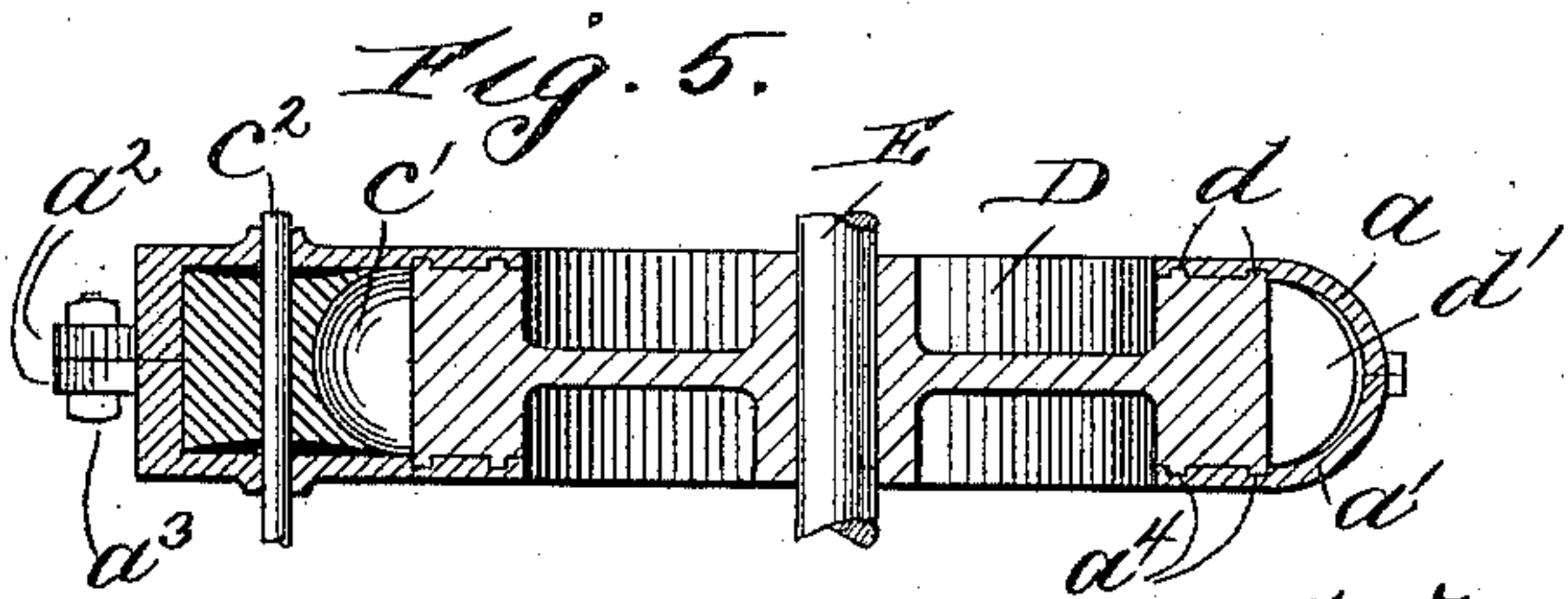
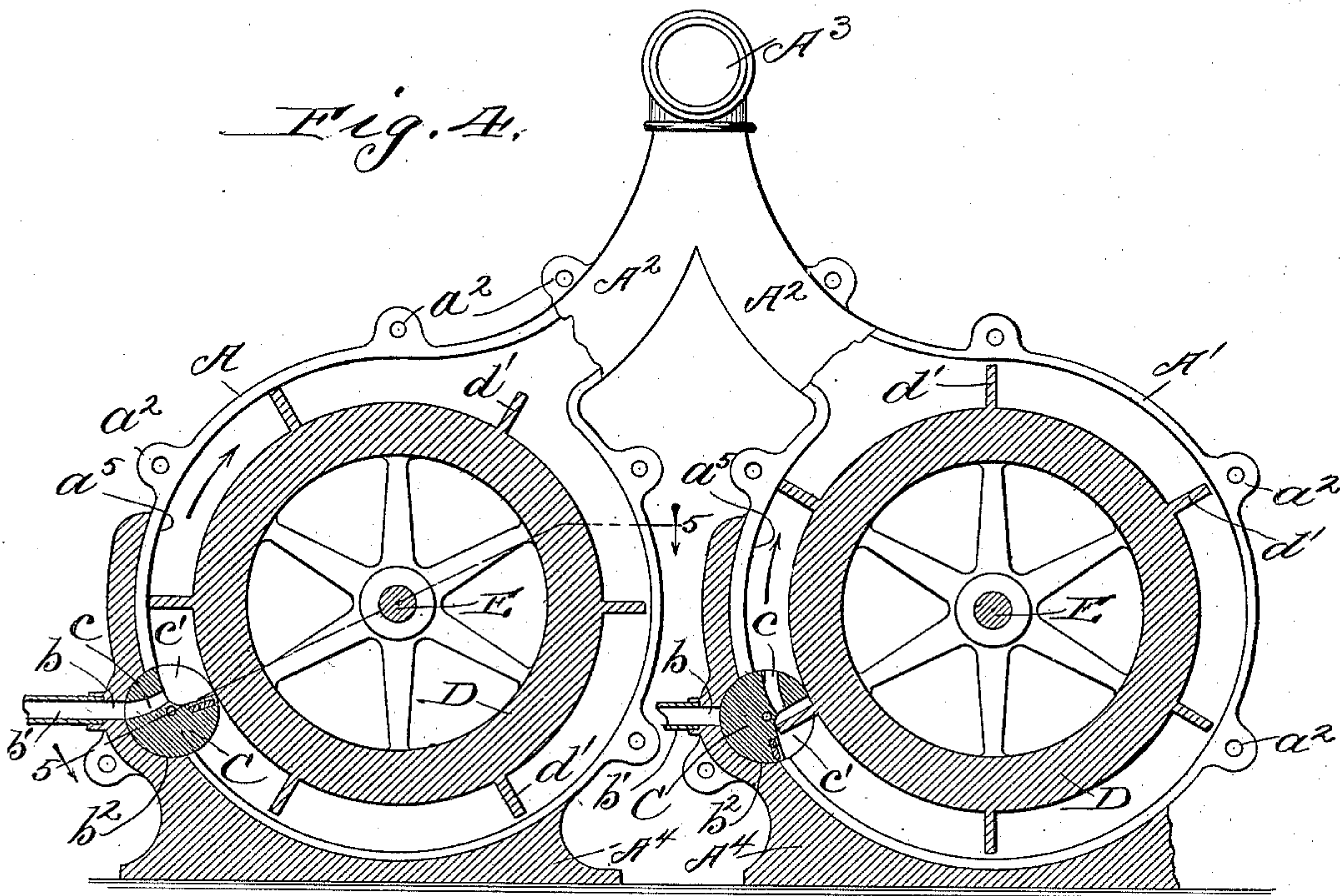
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ROTARY ENGINE.

(Application filed June 19, 1898.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:
W. J. Jaeger,
A. Gustafson.

Inventor:
John Deckelmann.
By Chas. Tillman,
Atty.

UNITED STATES PATENT OFFICE.

JOHN DECKELMANN, OF CHICAGO, ILLINOIS.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 638,914, dated December 12, 1899.

Application filed June 19, 1899. Serial No. 721,114. (No model.)

To all whom it may concern:

Be it known that I, JOHN DECKELMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

This invention relates to improvements in that class of steam-engines known as "rotary" engines; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are, first, to provide a rotary engine in which the greatest amount of power shall be derived from a minimum expenditure of steam and directly applied in a rotary motion; second, a rotary engine in which the admission of steam to the cylinders will be automatically controlled, so as to supply it to the cylinders and against the pistons at the proper times, and, third, to so construct the engine as to overcome "dead-centers" and in such a manner that the steam will be applied to the pistons at a considerable distance from their bearings, thus affording greater leverage or power.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a plan view in elevation of my engine. Fig. 2 is a view in side elevation thereof. Fig. 3 is a side view of one of the piston-carrying wheels, showing it detached. Fig. 4 is a central vertical sectional view through the cylinders and piston-wheels and illustrating a portion of the cylinder-casing in elevation. Fig. 5 is a sectional view taken on line 5 5 of Fig. 4. Fig. 6 is a similar view taken on line 6 6 of Fig. 7, showing the construction of one of the controlling-valves; and Fig. 7 is a similar view taken on line 7 7 of Fig. 6.

Similar letters refer to like parts throughout the different views of the drawings.

The cylinders A and A' of my engine are preferably formed of two sections a and a' , circular in form and provided on their outer adjacent surfaces with ears a^2 , through which

are passed bolts a^3 , employed for securing them together. The upper portion of each of the cylinders is formed or provided with an exhaust-pipe A^2 , which communicate with a common exhaust-pipe A^3 , leading to any desired point. The base A^4 or lower portion of each of the cylinders is thickened and formed with a supply-port b , with each of which communicates a pipe b' for the supply of steam, and which pipes may be connected at their other ends to a boiler or other source of steam-supply. Each of the bases or lower portions A^4 is also provided with a valve-seat b^2 for the valve C, which is cylindrical in form and is provided with a port c to register with the supply-port b and with a recess c' to receive the pistons, as will be presently explained. The valves C are mounted on shafts c^2 , having their bearings in the sections a and a' of the cylinders, and are each provided with a radial slot c^3 for the operation of a packing-strip c^4 , which is actuated by means of springs c^5 , located within said slot and against the inner surface of said strip, as is clearly shown in Figs. 6 and 7 of the drawings. The outer portion of the slot c^3 is contracted to fit a like portion of the strip c^4 to prevent it being pressed outwardly too far when not in contact with the piston-wheel. In each of the cylinders is located a wheel D, the sides of the rim of which are provided with circumferential ribs d , which fit in grooves a^4 on the inner surfaces of the sections comprising the cylinders, thus providing a close fit to prevent the escape of steam. At proper points on the peripheries of the wheels D are located wing-pistons d' , which are preferably substantially semicircular in shape, as shown in Fig. 5 of the drawings, but may be of any form to correspond with the shape of the cylinders in cross-section. The wheels D are mounted on suitable shafts E, which are journaled in bearings e , mounted on a suitable support. (Not shown.) While the cylinders are circular in form, yet their inner surfaces do not describe true circles—that is to say, the portion a^5 of each cylinder between the valve thereof and its exhaust-port in the direction of the travel of the wheel is somewhat nearer the axis of the wheel than the other portion of the cylinder, thus causing the pistons d' to fit the portions a^5 of the cylinders closely and the other por-

tions loosely, as is clearly shown in Fig. 4 of the drawings. Mounted on one of the shafts E, near one of the cylinders, is a cam-wheel F, which is provided with a number of points or projections f to correspond with the number of pistons on each of the piston-wheels. Passing through suitable guides g , located on the casing or otherwise, is a rod g' , one of whose ends is connected by means of a link g^2 to a short crank g^3 on the shaft c^2 of the valve located in the cylinder A and the other end of which is provided with a roller g^4 to impinge the periphery of the cam-wheel. Passing through suitable guides h on the cylinder or otherwise is another rod h' , one end of which is provided with a roller h^2 to impinge the cam-wheel and the other end of which is connected to a rod h^3 , whose other end is secured to a crank g^3 on the shaft of the valve located in the cylinder A'. Each of the rods g' and h' is provided with a spring h^4 to normally hold them in contact with the cam-wheel.

In Figs. 1 and 2 of the drawings I have shown my engine provided with gearing for the transmission of power, which consists of a fly or belt wheel H, mounted on a shaft H', journaled in suitable bearings, on which shaft is also mounted a gear i , which meshes with a gear i' , which in turn meshes with a gear i^2 , which engages the gears I, mounted on the shafts E of the piston-wheels.

The operation of my invention is as follows: Steam is admitted to one of the cylinders through the supply-pipes b' , the valves C being so arranged that the port c of one will register with the port b of the casing, while the

other valve closes said port. The steam thus admitted will cause the piston-wheels to be rotated, in which operation the cam-wheel F through its connections with the shafts of the valves will cause them to open and close alternately and at the proper time to receive in their recesses c' one of the pistons on the piston-wheels.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination with two cylinders or casings each having a supply and exhaust port, of a wheel located in each cylinder and carrying a number of pistons, a rotary valve located in each cylinder and having a port to register with the supply-port of its respective cylinder, and a recess to receive the pistons, a cam-wheel having a number of projections to correspond with the number of pistons on each wheel and mounted on the shaft of one of the piston-wheels, the spring-held rod g' , having the roller g^4 , at one of its ends to impinge the cam-wheel, and connected at its other end to a crank on the valve-shaft, the spring-held rod h' , having at one of its ends the roller h^2 , to impinge the cam-wheel, the rod h^3 , connected at one of its ends to the other end of the rod h' , and at its other end to a crank on the shaft of the valve located in the cylinder in which the cam is journaled, substantially as described.

JOHN DECKELMANN.

Witnesses:

CHAS. C. TILLMAN,
A. GUSTAFSON.