

No. 769,891.

PATENTED SEPT. 13, 1904.

J. DELIZY.

ROTARY GENERATOR.

APPLICATION FILED APR. 1, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1

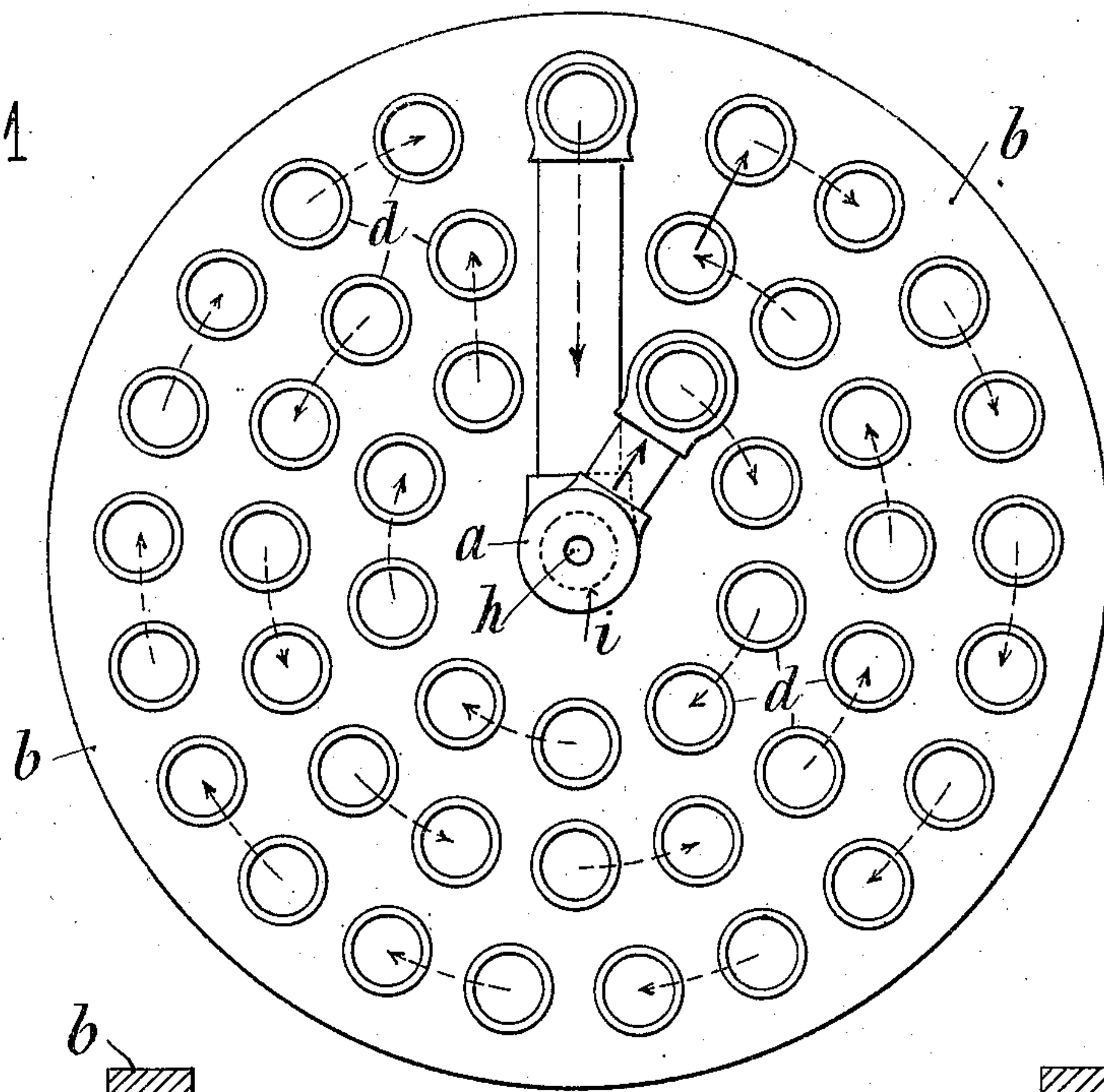
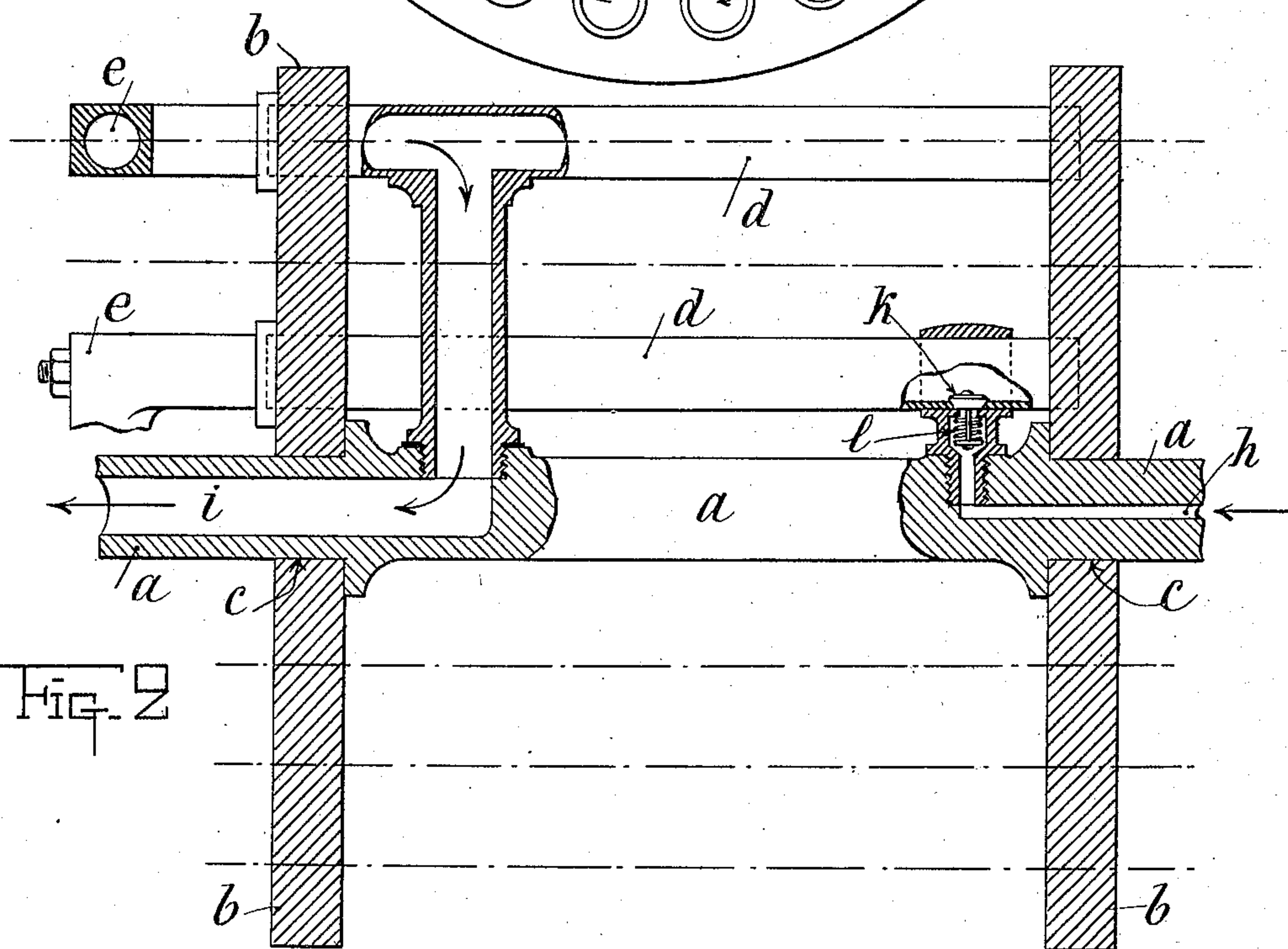


FIG. 2



Witnesses.

F. Heeren
Franklin

Inventor

Joseph Delizy
by P. J. Singer atty

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2 SHEETS—SHEET 2.

Fig. 3

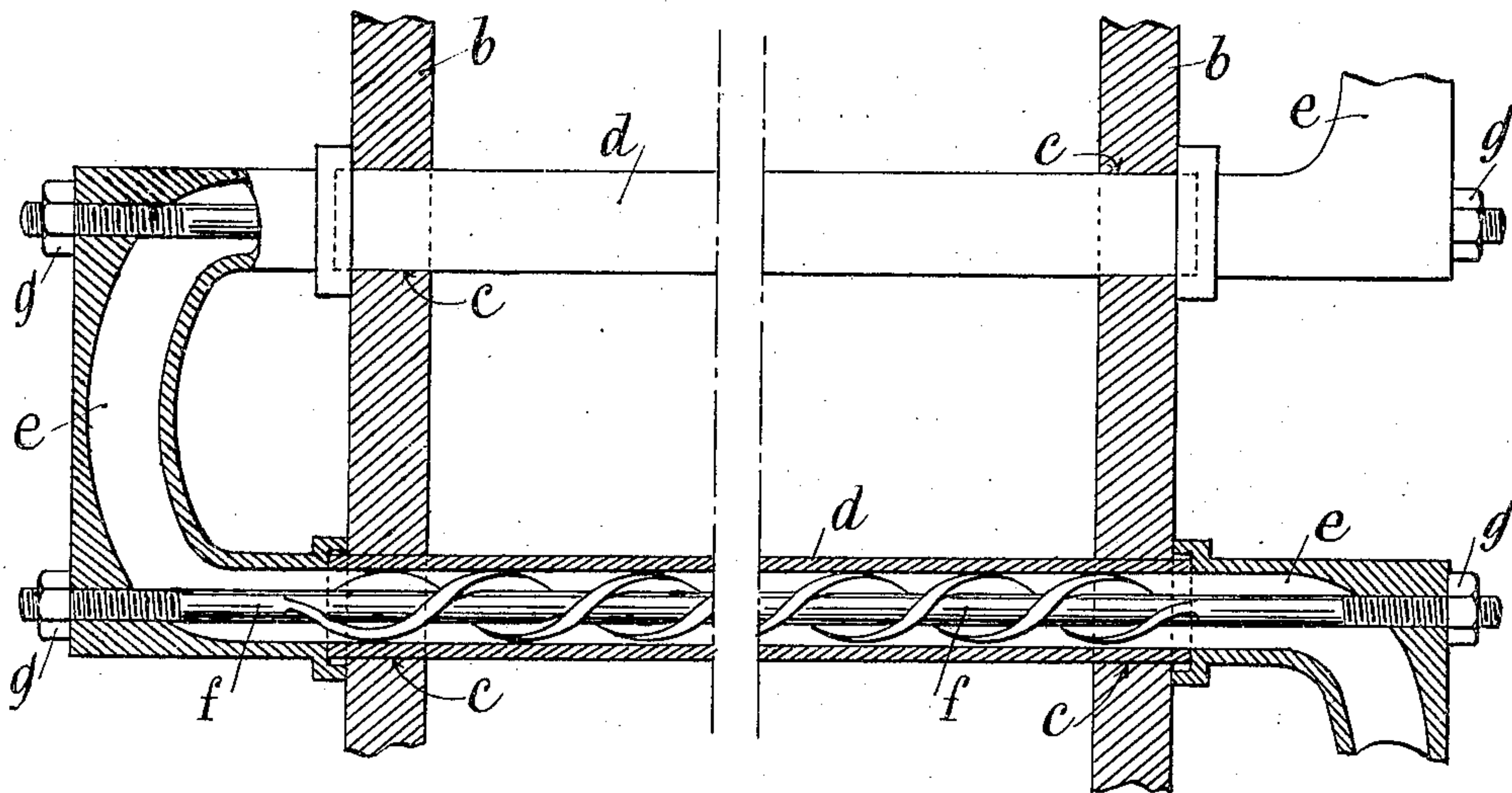


Fig. 4

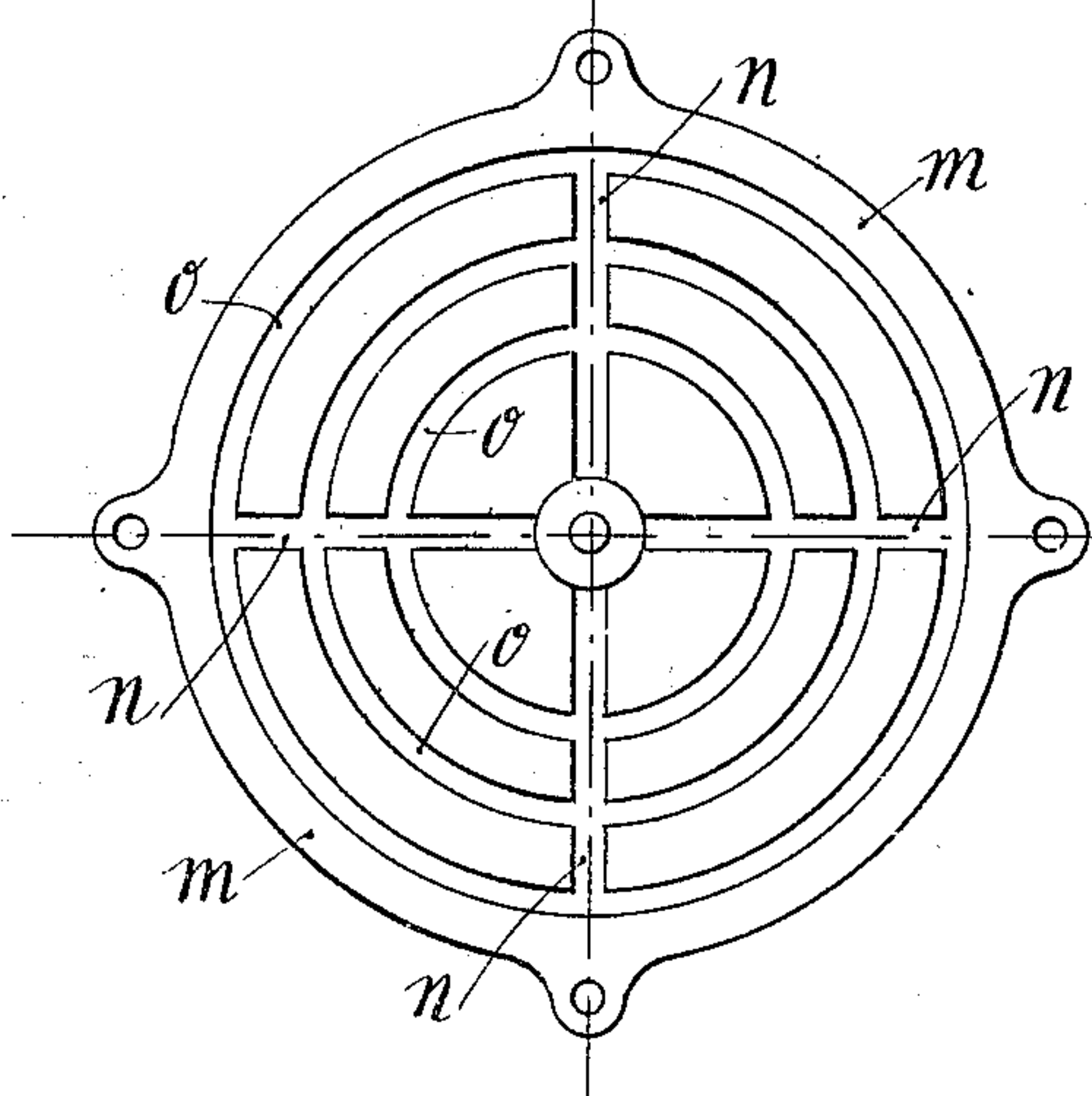
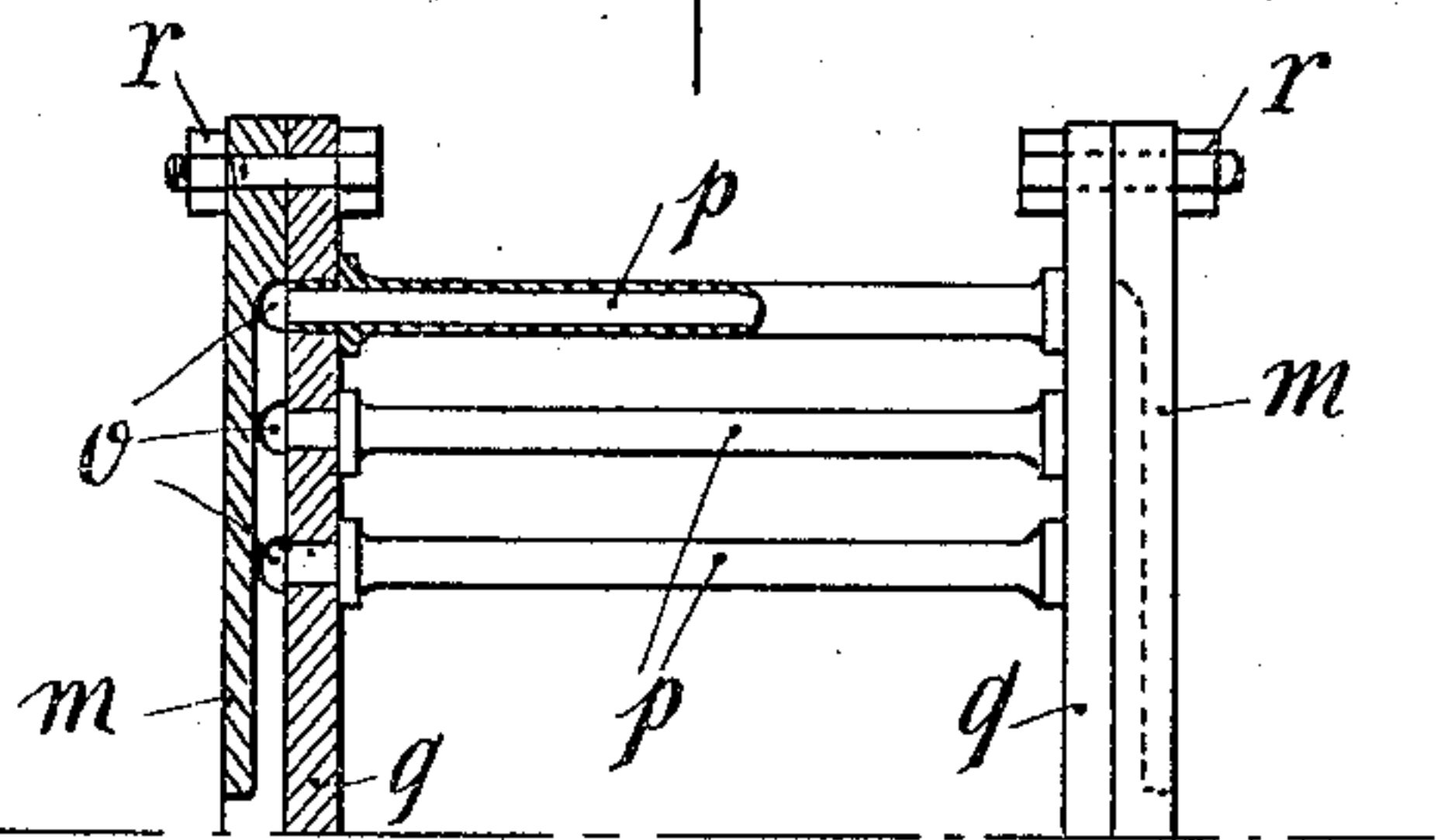


Fig. 5



Witnesses.

T. Heeren
Franklin

Inventor

Joseph Delizy
by B. Singer atty.

UNITED STATES PATENT OFFICE.

JOSEPH DELIZY, OF PARIS, FRANCE.

ROTARY GENERATOR.

SPECIFICATION forming part of Letters Patent No. 769,891, dated September 13, 1904.

Application filed April 1, 1904. Serial No. 201,163. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DELIZY, a citizen of the Republic of France, and a resident of Paris, France, have invented certain new and useful Improvements in Rotary Generators for the Instantaneous Production of Steam, of which the following is a specification.

This invention for an improved rotary generator for the instantaneous production of steam and hot air is hereinafter described with reference to the accompanying drawings, in which two forms of this generator are illustrated as examples.

Figure 1 is an elevation with the end plate removed; Fig. 2, a vertical section showing the water-inlet and the steam-outlet; Fig. 3, a detail illustrating the junction of two tubes; Fig. 4, a modified arrangement of the end plate for distributing the water and the steam in the tubes; Fig. 5, a half-sectional elevation of a generator, including the plate shown in Fig. 4.

The generator illustrated in Figs. 1, 2, and 3 consists of a shaft *a*, carrying the tube-plates *b*, drilled with a single or several rows of holes *c*, according to their diameter. Through the tube-plates *b* a number of tubes *d* are carried, corresponding to the number of holes *c* in the plates. These tubes are assembled and connected one with the other by junctions *e* of U-shaped section. In each tube *d* is a bolt *f*, which runs in the form of a double helix lengthwise of the tube. Each end of this bolt is screw-threaded and provided with a nut *g*. In each end of the generator-shaft a passage or duct is formed. One of these passages, *h*, opens into the first tube, the other, *i*, into the last tube, forming, respectively, the water-inlet and steam-outlet. The water-inlet passage or duct *h*, Fig. 2, is appreciably smaller in diameter than the steam-outlet passage, and is, moreover, furnished with an automatic valve *k*, provided with a spring *l*. This valve opens under the pressure of the inflowing water and closes as soon as the pressure of the steam which is formed exceeds that of the water flowing in. The generator thus formed is supported on the shaft *a*, which is mounted on bearings placed on a frame, whereby the generator is able to rotate freely.

Feed.—The generator is fed in the following manner: A tank (not shown in the drawings) is partially filled with a certain quantity of water and compressed air. It is provided with a manometer, which indicates the pressure of the compressed air in the tank. This pressure of the air is increased or reduced, as desired, by means of an air-pump and an escape-valve, according to the pressure that may be desired. The tank communicates with the generator by a tube provided with a graduated cock and is fixed to the generator-shaft by means of a junction, which acts as a stuffing-box on the end of the shaft in which the small hole is drilled. This junction is sufficiently tight to prevent any leakage and loose enough to allow the generator to rotate. The feed may also be effected by means of a variable-supply pump operated by an eccentric arranged on the generator-shaft. During the preliminary heating the generator is set in motion by means of a hand-wheel arranged on the generator-shaft in order that the generator may be uniformly heated. When working, the generator is rotated at the requisite speed by means of gear arranged on its shaft and corresponding to other gear arranged on the motor-shaft.

Heating.—The generator thus constituted may be heated with coal when large quantities of steam are required or with petrol or spirit when small quantities of steam are required. The generator has a casing the form of which differs according to the nature of the heating and which does not prevent it from rotating freely. When the heating is effected by petrol ignited by the flame from a blowpipe, the casing is formed of sheet-iron plates with a layer of fibrous asbestos between. This casing is made of semicircular form at the top and straight at the bottom. It is surmounted by a flue and drilled with holes at the bottom and on the sides near the fire-box. The heating apparatus is fixed to the bottom of the casing, which is fixed to the frame by its center.

Advantages.—From what has been stated it will be easily seen what economy is effected in weight and volume by this form of generator, which gives a large heating-surface

with but a small volume. In fact, as the tubes and their bolts pass alternately over the active heat they are uniformly heated, and the whole heating-surface is usefully employed. Finally, as the tubes do not remain stationary they cannot be burned, and being readily removable they may be easily cleaned when necessary. Steam is easily produced, as the water introduced under pressure through the center of the generator reaches the first tube in the form of spray and is then thrown by the spiral windings of the bolts over the whole interior surface of the tubes. The steam first formed is then forced to pass through the other tubes, being unable to leave the generator except through the center opposite where the water is admitted. Complete and instantaneous evaporation is thus absolutely assured.

The generator illustrated in Figs. 4 and 5 is formed of two outer plates, such as *m*, with passages *n*, which radiate from the center, and circular passages *o*, communicating with the tubes *p*, that are carried through inner plates *q*, fixed to the outer plates *m* by the bolts and nuts *r*. In this second form of the invention the water enters through the axis of one of the plates *m*, circulates in its passages *n* *o*, passes through the tubes *p*, reaches the opposite plate in the form of steam, which collects in this plate and from which it flows away through the axis

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

1. A rotary generator for the purpose set forth, characterized by two parallel tube-plates connected together and carried by a shaft and by tubes running through the plates, each tube being connected with the following tube by means of a junction of U-section against which it is retained by a bolt with a double helix occupying the whole length and interior of the tube.

2. A rotary generator for the purpose set forth, characterized by a central shaft with an interior passage or duct conveying the water into the first tube of the generator, a valve arranged at the mouth of this passage and a second passage of larger diameter than the former for discharging the steam from the last tube of the generator.

3. In a device of the character set forth, the combination of rotary plates provided with internal radiating and circular passages, tubes connecting between said plates and inlet and outlet orifices in said plates, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of March, 1904.

JOSEPH DELIZY.

Witnesses:

EDMOND LECOUTURIER,
HANSON C. COXE.