

(No Model.)

3 Sheets—Sheet 1.

J. RUTHVEN.

GAS REGULATING AND ADVERTISING CABINET.

No. 505,372.

Patented Sept. 19, 1893.

FIG. 1.

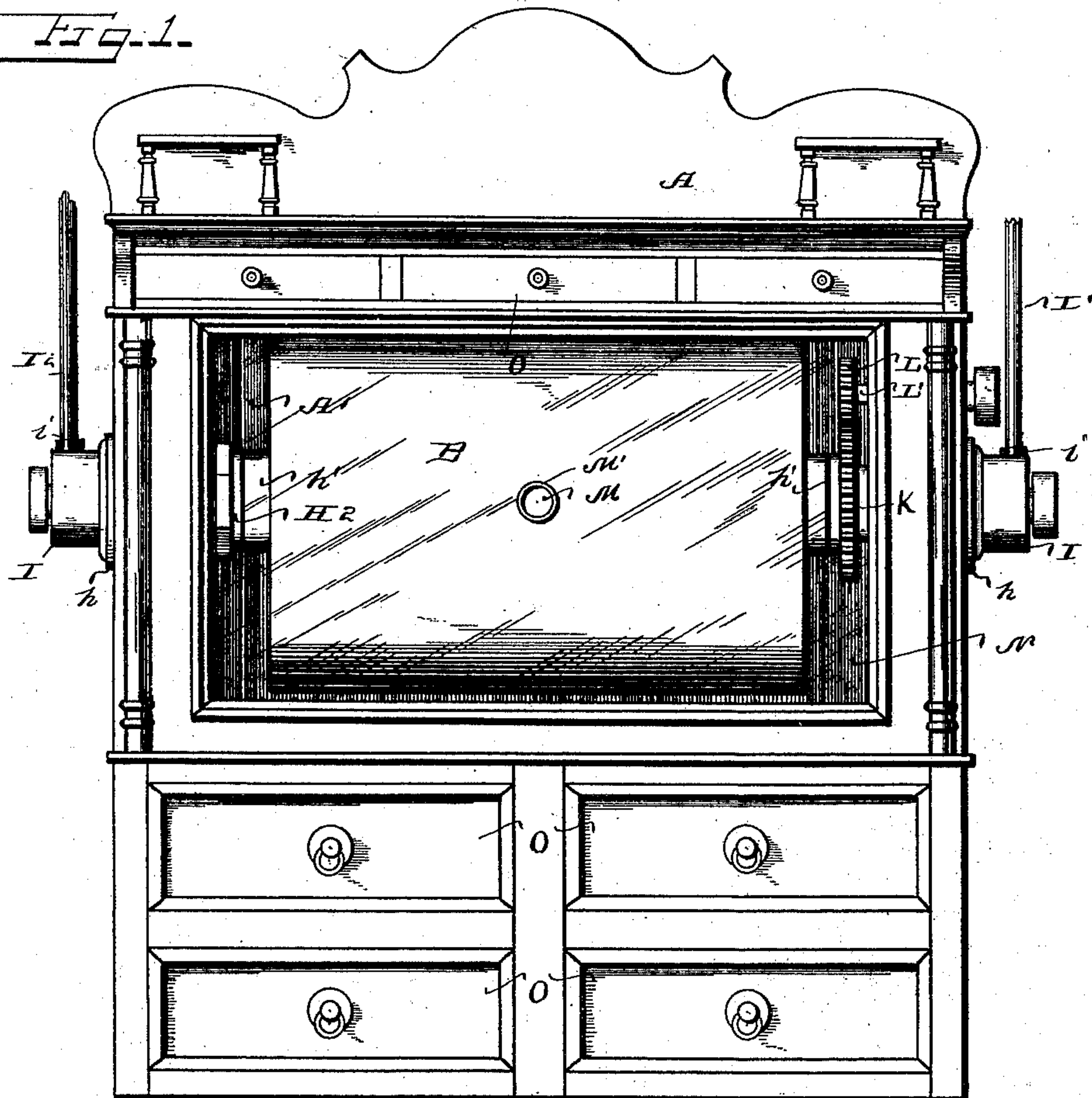
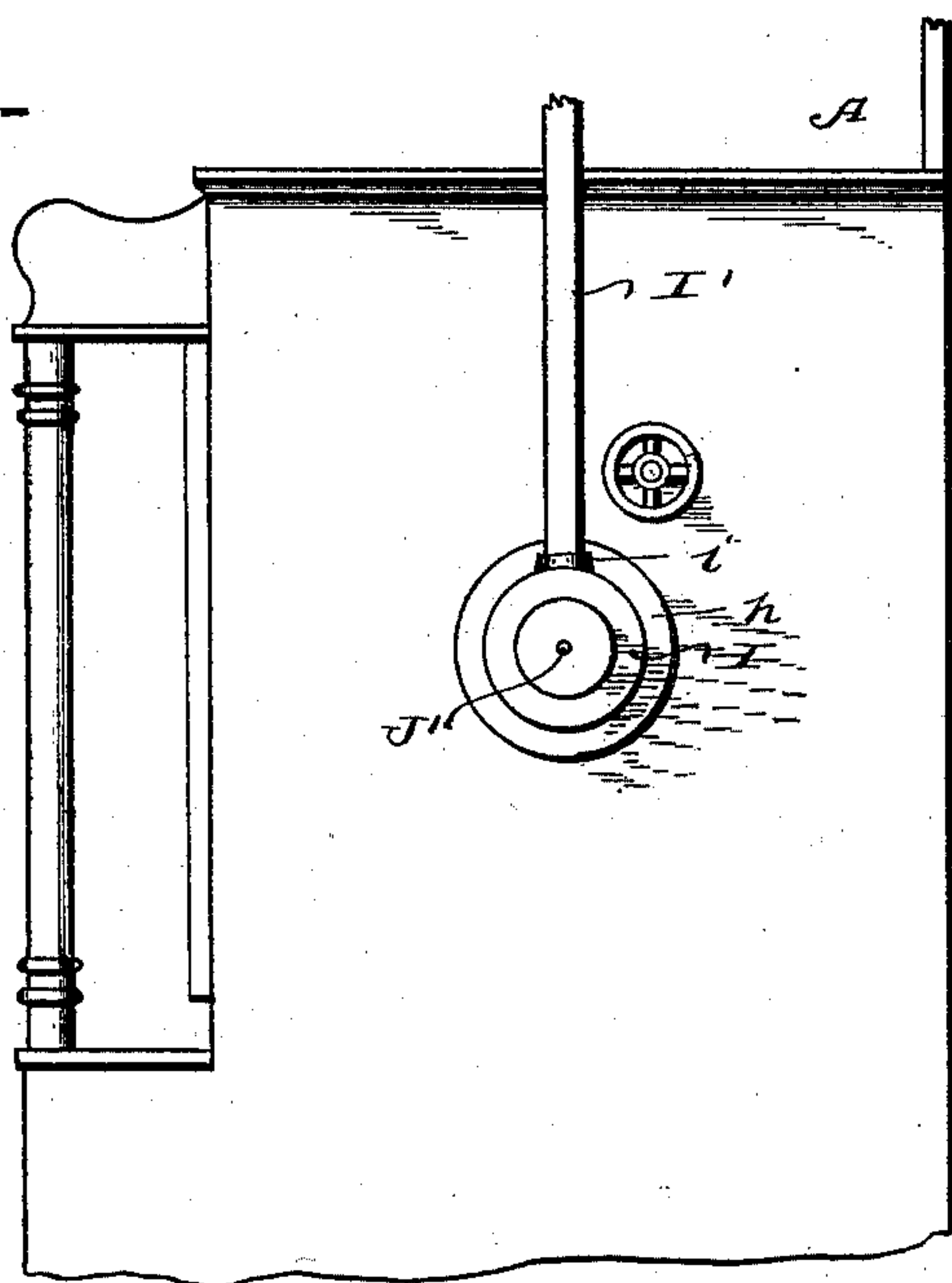


FIG. 2.



WITNESSES

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(No Model.)

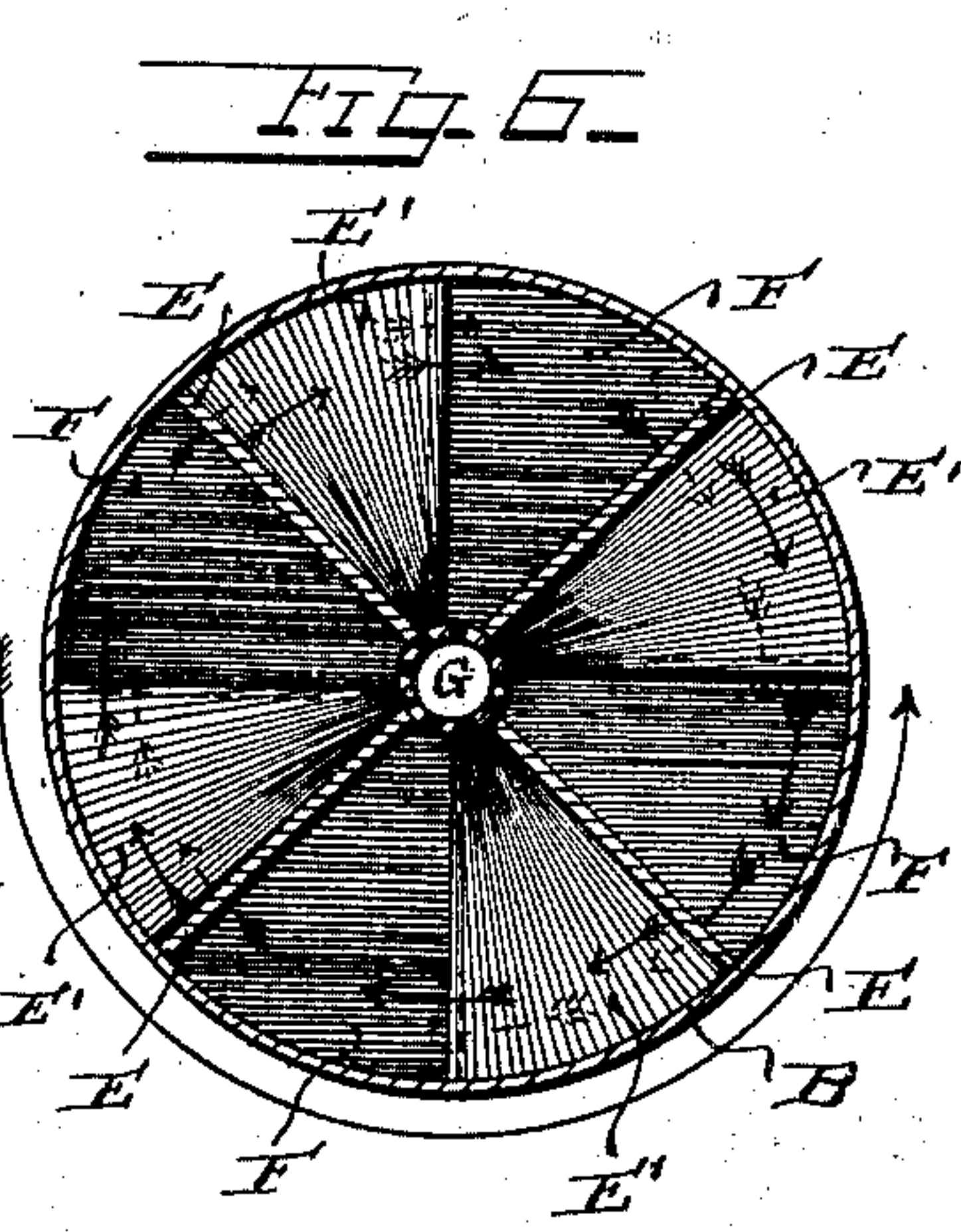
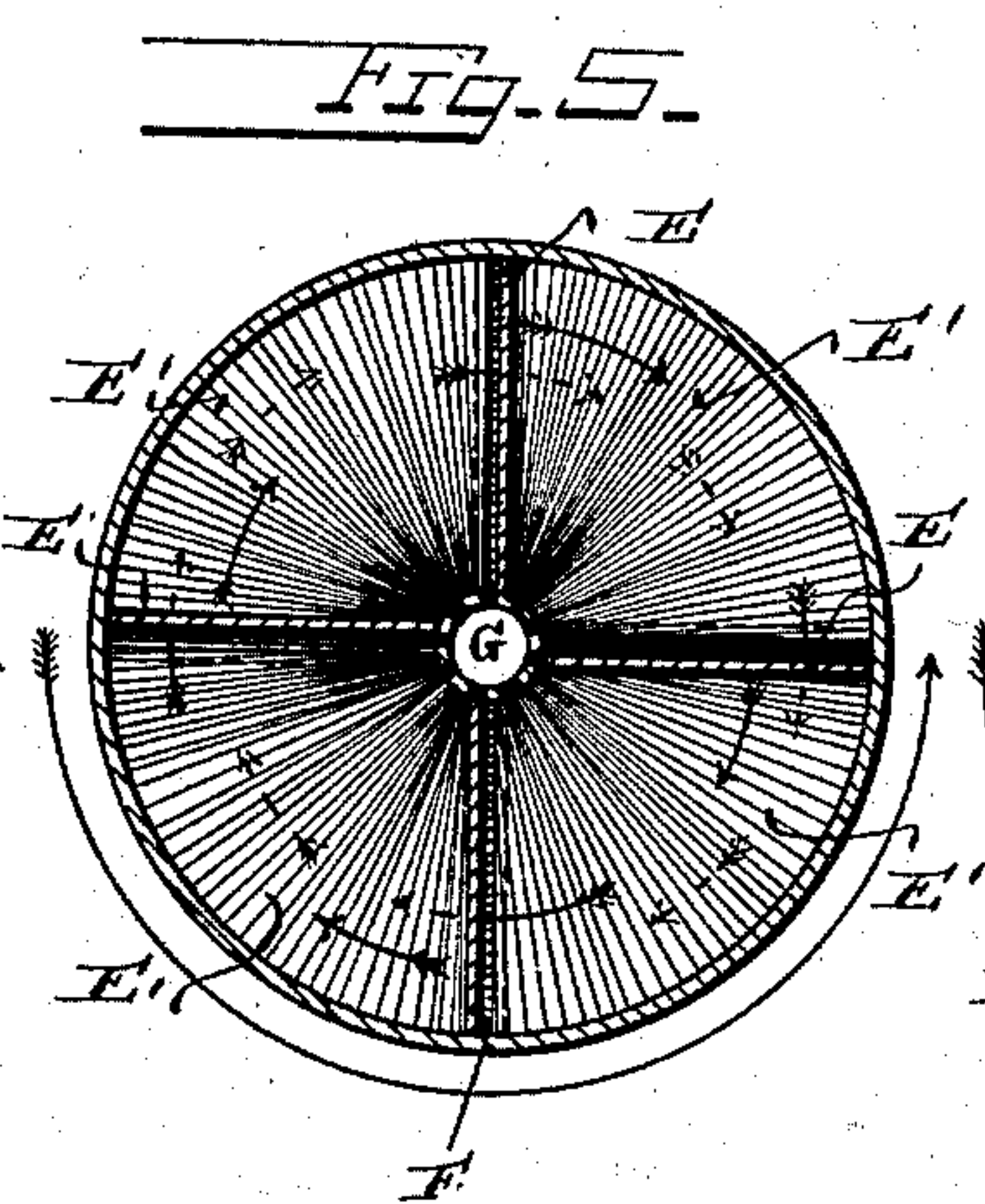
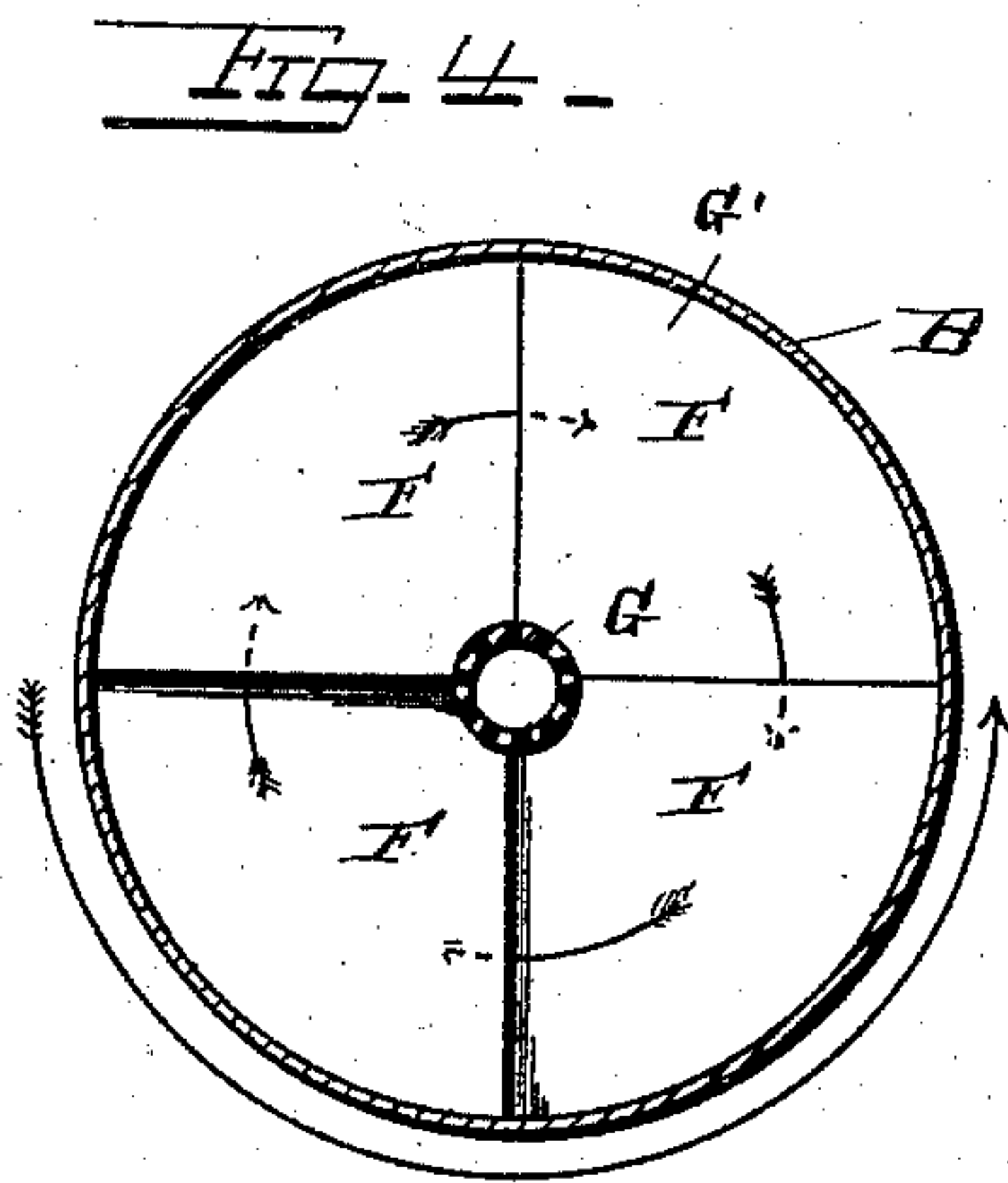
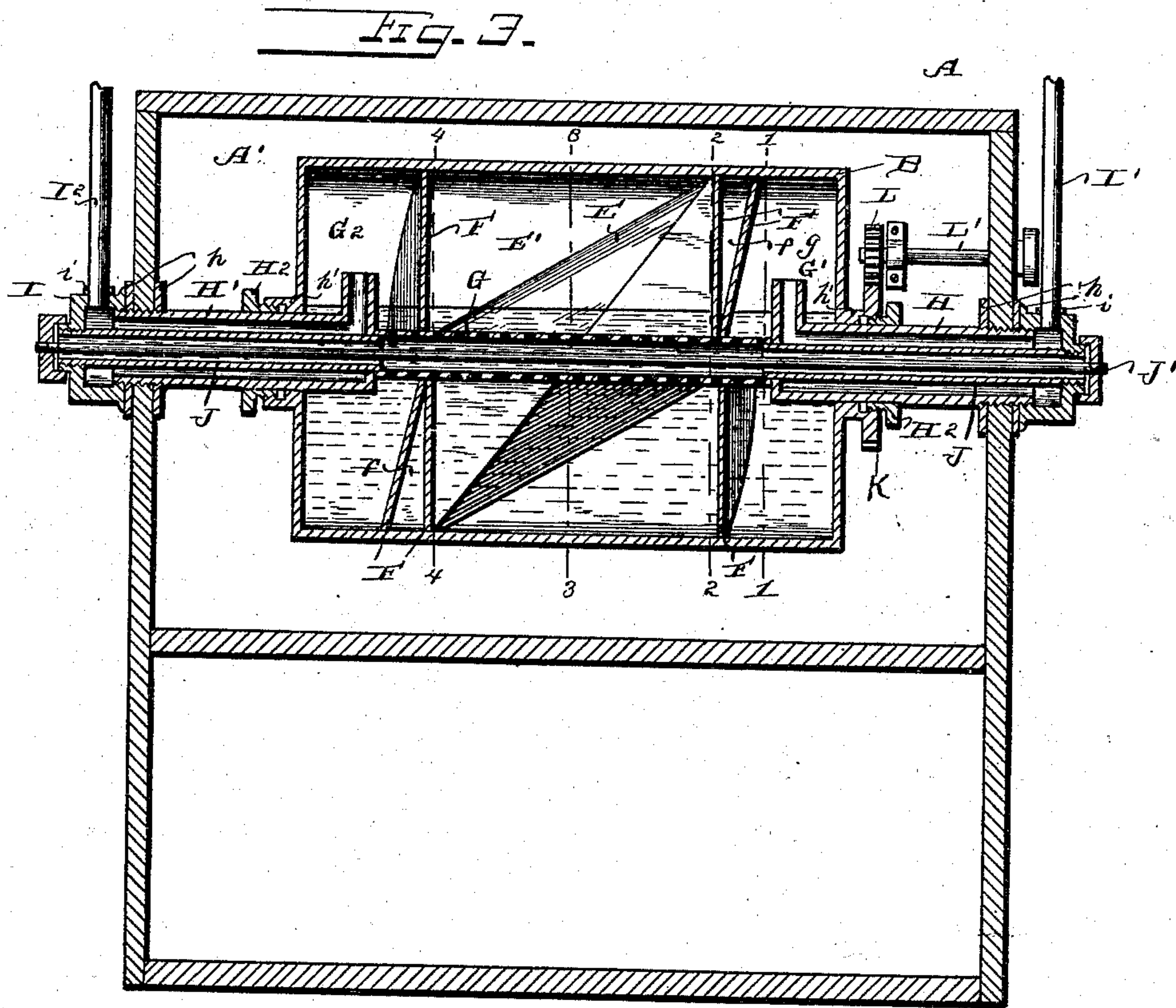
3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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FIG. 7

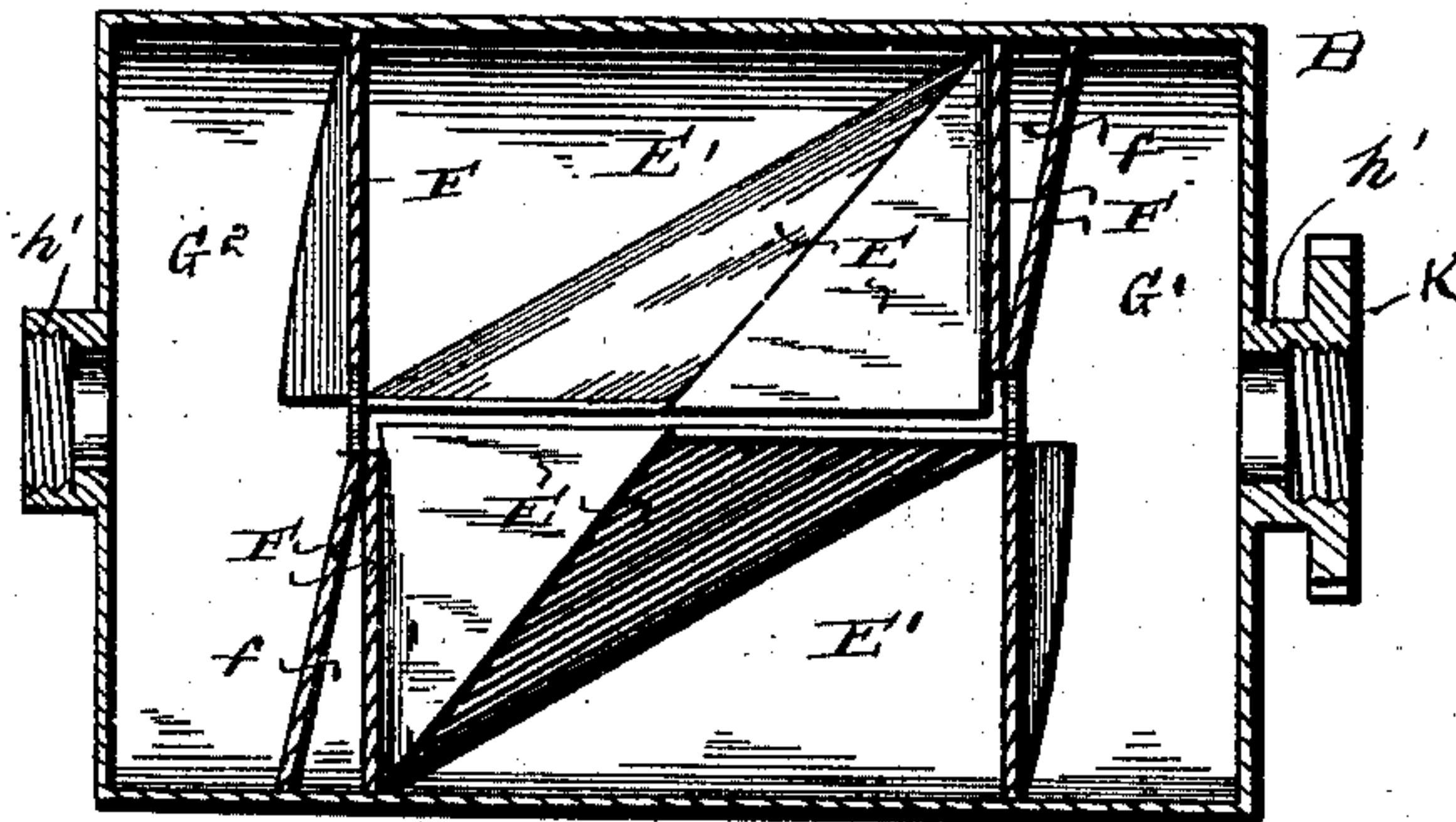


FIG. 8

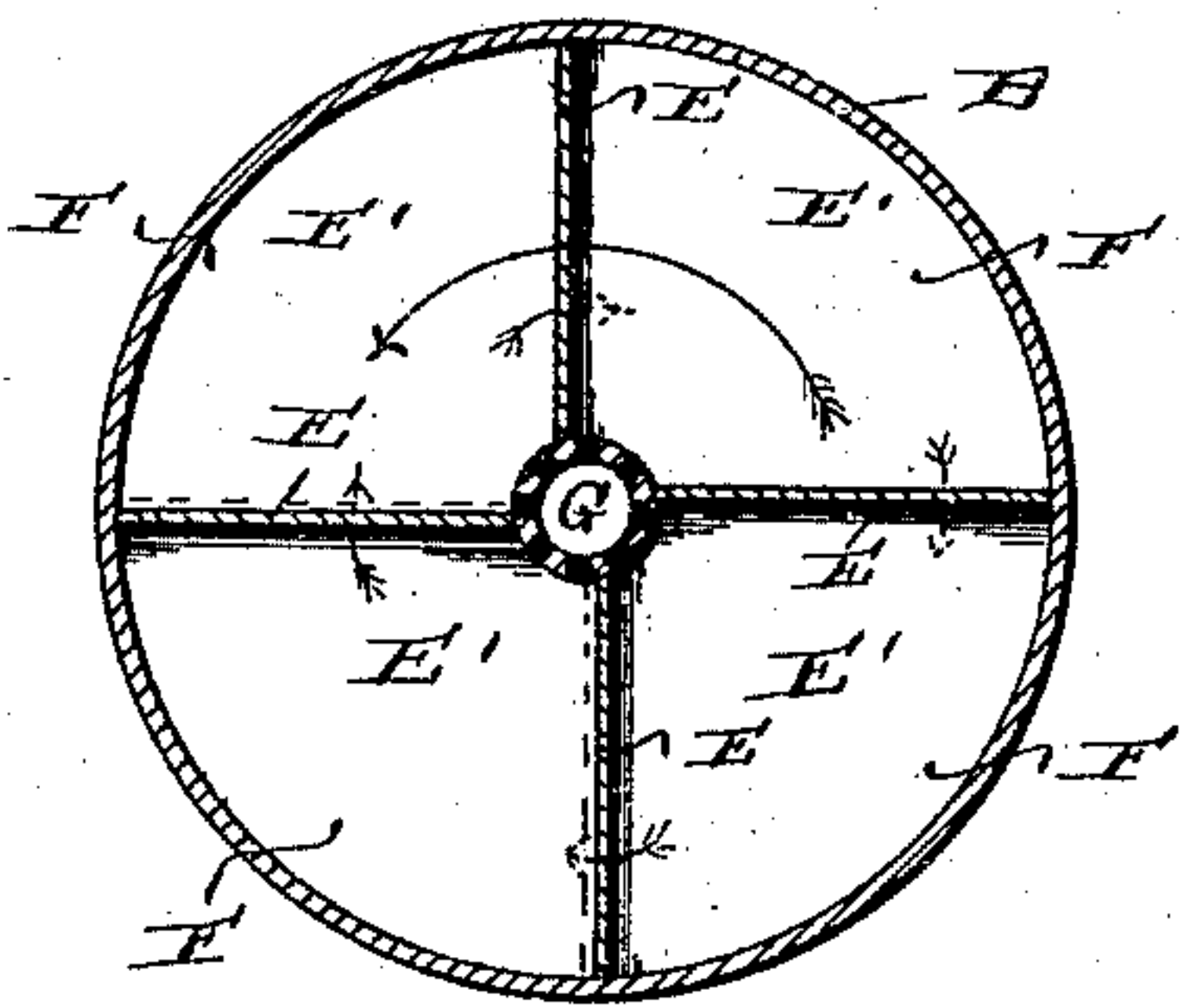
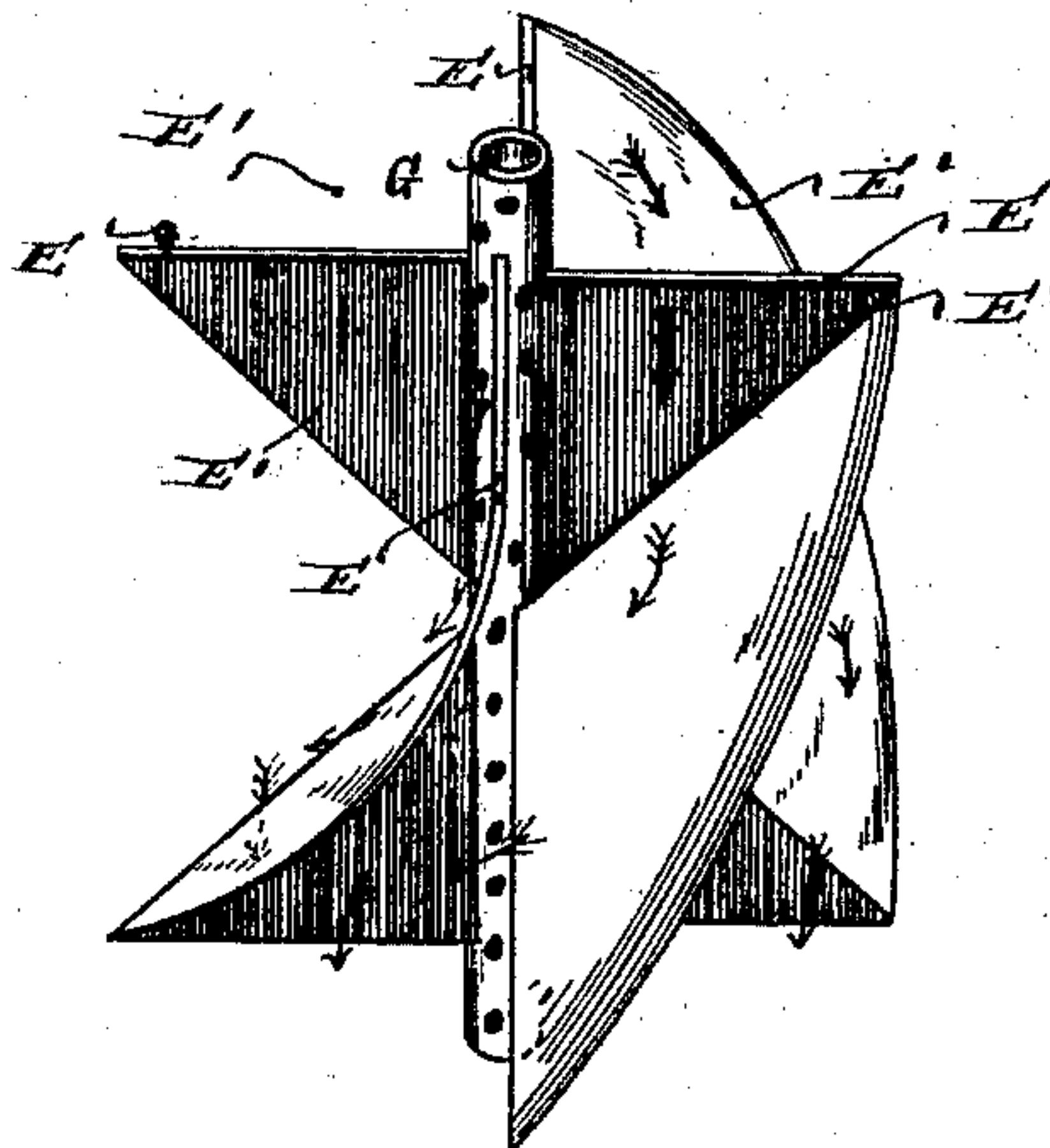


FIG. 9



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# UNITED STATES PATENT OFFICE.

JOHN RUTHVEN, OF TOPEKA, KANSAS.

## GAS-REGULATING AND ADVERTISING CABINET.

SPECIFICATION forming part of Letters Patent No. 505,372, dated September 19, 1893.

Application filed January 14, 1893. Serial No. 458,348. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN RUTHVEN, a subject of the Queen of Great Britain, and a resident of Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Gas-Regulating and Advertising Cabinets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of the cabinet. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal vertical section, through the cabinet and regulator. Fig. 4 is a transverse section on the line 1—1, Fig. 3, the large arrow indicating the direction of rotation, and the small arrows the direction of the flow of vapor. Fig. 5 is a similar view on the line 2—2, of Fig. 3. Fig. 6 is a similar view on the line 3—3, of Fig. 3. Fig. 7 is a longitudinal section through the regulator, the central tube being removed. Fig. 8 is a transverse sectional view on the line 4—4, of Fig. 3, and Fig. 9 is a perspective view of the regulator, with the exterior cylinder casing removed in order to show the interior arrangement.

This invention has relation to certain new and useful improvements in a combined vapor regulating and advertising cabinet, the object being to provide an article of this character, having therein a suction cylinder and regulator, by the operation of which carbureted vapor is drawn from an exterior carburetor, and is delivered to the points of combustion with a uniform and steady pressure.

With these objects in view, the invention consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the accompanying claims.

Referring to the accompanying drawings illustrating the invention, the letter A indicates the cabinet, which is designed to be constructed in such a manner as to constitute a handsome article of furniture. Said cabinet has at its upper interior portion, a chamber A', in which is located the suction cylinder and regulator B, the construction and arrange-

ment of which will now be described. Said cylinder at its central interior portion is subdivided by a series of partitions or angularly arranged plates E, into four longitudinal spirally arranged chambers or passages E', the ends of which are nearly closed by the radial and obliquely set triangular plates F, so arranged as to leave triangular openings *f* between their outer edges and the partition or plate E. At the in-taking end *g* of the cylinder, these openings face in the direction of the rotation of the drum, indicated by arrows, but at the delivery end, said openings face in the reverse direction, and each is at a nearly diametrically opposite point from its respective in-taking opening. The partition plates E, and the end plates F, are arranged around a central longitudinal tube G, formed with a series of through-and-through perforations of considerable diameter. The end plates F and the openings *f* are located some distance from the respective ends of the cylinder, and separated therefrom by the open chambers G', G<sup>2</sup>. In each of the cylinder ends is a circular central opening, and through these openings into the chambers G', G<sup>2</sup> project respectively L-shaped pipes H, H', the horizontal arms of which project through the end walls of the cabinet, in which they are secured by jam-nuts *h*, and form respectively the vapor inlet and outlet. The vertical arms of said pipes extend upwardly into the respective chambers G', G<sup>2</sup>. The openings in the cylinder ends are surrounded by sleeves or bushings *h'*, which in connection with the pipes H, H', form the main bearings for the cylinder. Stuffing boxes H<sup>2</sup> are provided in connection with said bushings. On the projecting ends of said pipes H, H', are screwed caps I, having each a threaded nipple or projection *i*, to one of which is connected a pipe I', which leads to a carburetor located at any suitable point, but preferably exterior to the building in which the cabinet is situated. To the other cap is connected a pipe I<sup>2</sup>, which is designed to extend throughout the building and connect with the various cooking and illuminating burners.

The ends of the central perforated tube G embrace the ends of pipes or tubes J, thereby forming a central bearing for the cylinder.



Said pipes or tubes J extend through the pipes H, H', and are held at their outer ends in the caps I.

J' is a central longitudinal rod or shaft which extends through the tubes J, the tube G, and through the caps I, where it is secured by nuts.

The cylinder is designed to be driven by the gear K, run by clockwork, or any suitable motor. Said gear wheel may be carried by the sleeve or bushing h', and gear with a second wheel L on a shaft L' to which the driving power is applied.

The operation is as follows:—The cylinder is filled with water or other liquid to a point about one fourth of an inch above the perforated tube G, as indicated in the drawings. The revolution of the cylinder creates a vacuum or suction through the pipe I', which draws in carbureted vapor from the carburetor into the chamber G' at the upper portion thereof. It will be apparent that as the cylinder revolves, the water or liquid therein will constantly seek its level through the perforations of the pipe G, and that the vapor in the chamber G' will enter each of the passages E' in the cylinder, through the openings f, when said openings come to the upper portion of said chamber. Consequently, owing to the revolution of the spiral passage, the vapor will follow the water therein, and will be forced out at the opposite end into the chamber G<sup>2</sup>, when the opening at that end comes above the level of the liquid, at which time the in-taking opening at the opposite end has passed below the level of said liquid. In this manner, the vapor can pass through the passages E', only so fast as the liquid therein falls before it. By this means, a constant and steady pressure of the vapor at the burners is insured, depending upon the speed at which the cylinder is run. From the chamber G<sup>2</sup> the vapor passes out through the L-tube H', and the pipe I<sup>2</sup> to the various burners. It will also be apparent that the liquid in the cylinder, in addition to serving as a regulator for the vapor, acts as a regulator for the cylinder, whereby its rotation is steady and constant, and free from plunges. Said cylinder is provided in one side with a filling aperture M, closed by a screw plug or cap M', having a glass end whereby the height of the water in the cylinder may be observed. The cylinder should be refilled at intervals to make up for the loss by evaporation. In the front of the cabinet is a glass-covered opening N, which is immediately in front of the cylinder. The surface of said cylinder is designed to have a display of advertising matter, which may be printed, painted, or secured thereto. The slow rotation of the cylinder will display this matter to advantage. Hence the cabinet should be placed in some conspicuous position. Above and below this opening are drawers O, O, which may serve as receptacles for dishes and other articles.

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

1. The combination with the case or cabinet, and the chamber therein, of the suction cylinder and regulator within said chamber, the L-pipes one at each end forming respectively the vapor inlet and outlet, and having their vertical arms within said cylinder, said pipes forming bearings for said cylinder, and the perforated central tube or pipe forming a center bearing for said cylinder, substantially as specified.

2. The combination with the case or cabinet, having the interior chamber, of the suction cylinder and regulator within said chamber, the L-shaped pipes projecting one through each end wall of the cabinet, and forming the gas-inlet and outlet, their vertical arms extending into the opposite end portions of said cylinder, the central perforated tube having bearings at its ends, the central rod or shaft and the caps to which the inlet and outlet pipes are respectively connected, substantially as specified.

3. The combination of the L-pipes, their bearing pipes or tubes, the cylinder into the end portions of which the vertical arms of said L-pipes project, the bearing sleeves or bushings in said cylinder, the stuffing boxes, the central perforated pipe or tube engaging said bearing pipes at its ends, the caps on the outer projecting ends of said L-pipes, the inlet and outlet pipes connected to said caps, the central rod or shaft and the driving gear, substantially as specified.

4. The herein described suction-cylinder and vapor regulator, comprising a rotary cylinder designed to be partially filled with a liquid, the spirally arranged passages or chambers therein, the closed end chambers, an inlet pipe communicating with one of said end chambers, and an outlet pipe communicating with the other of said chambers, and a central perforated pipe, substantially as specified.

5. The herein described suction cylinder and vapor regulator, comprising a rotary cylinder designed to be partially filled with a liquid, its bearings and driving gear, the central portion of said cylinder being divided into a series of spiral chambers or passages, the end chambers into which said chambers or passages open, a vapor inlet communicating with one of said end chambers, and a vapor outlet communicating with the other of said chambers, and a central perforated tube or pipe, substantially as specified.

6. The combination with the suction cylinder having the closed end chambers, and the series of spiral chambers or passages connecting said end chambers and communicating therewith by oppositely directed openings, of the L-pipes forming bearings for said cylinder, and having their vertical arms projecting into the upper portions of said end cham-



bers said pipes forming respectively the vapor inlet and outlet, and the central perforated pipe or tube, substantially as specified.

- 5 7. A suction cylinder and vapor regulator, comprising a closed rotary cylinder provided with a vapor inlet and outlet, and designed to be partially filled with a liquid, a series of compartments or passages therein, and a central perforated tube or pipe through which

the liquid seeks its level as the cylinder rotates, substantially as specified.

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

JOHN RUTHVEN.

Witnesses:

S. S. STONE,

I. T. LOCKARD.