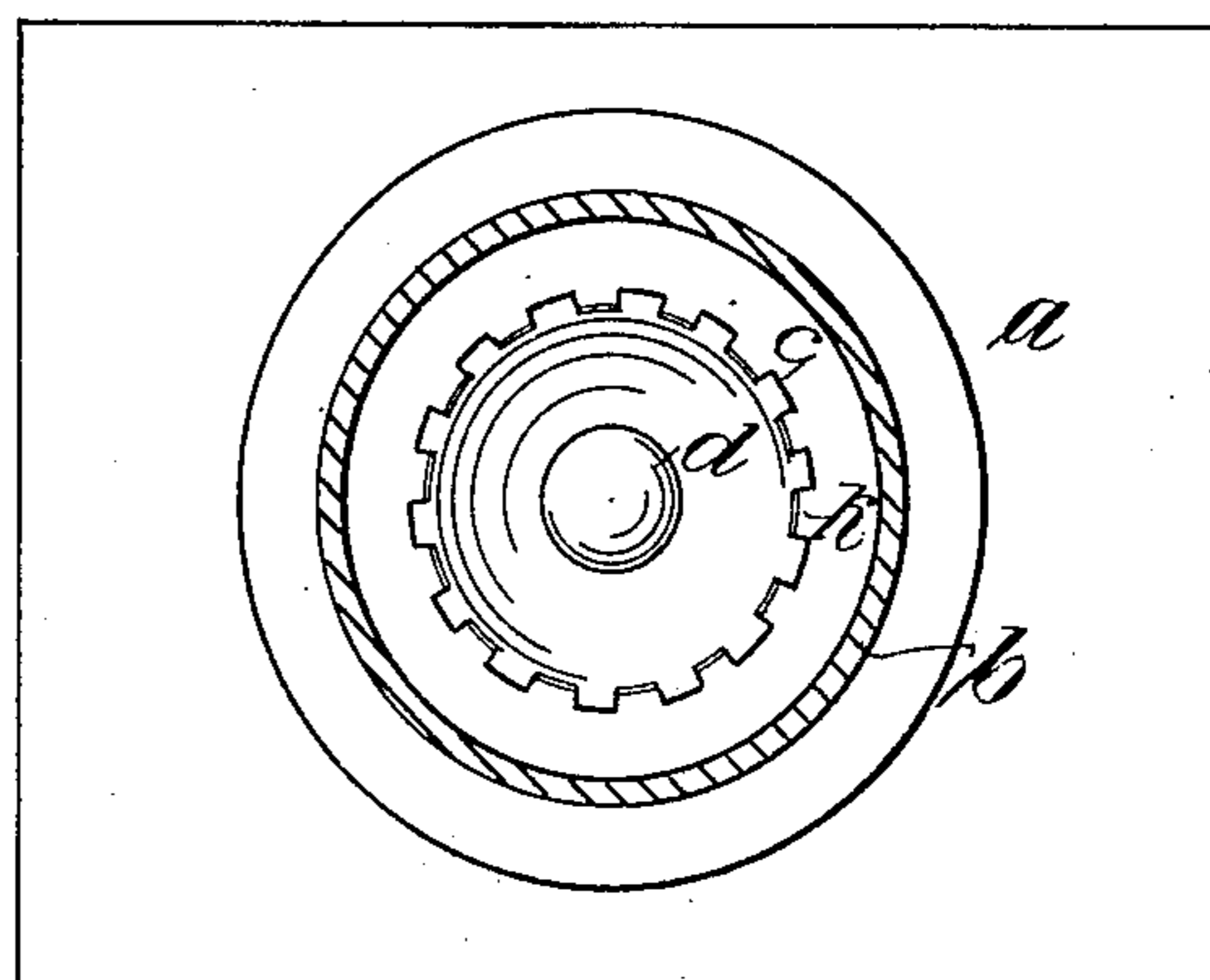
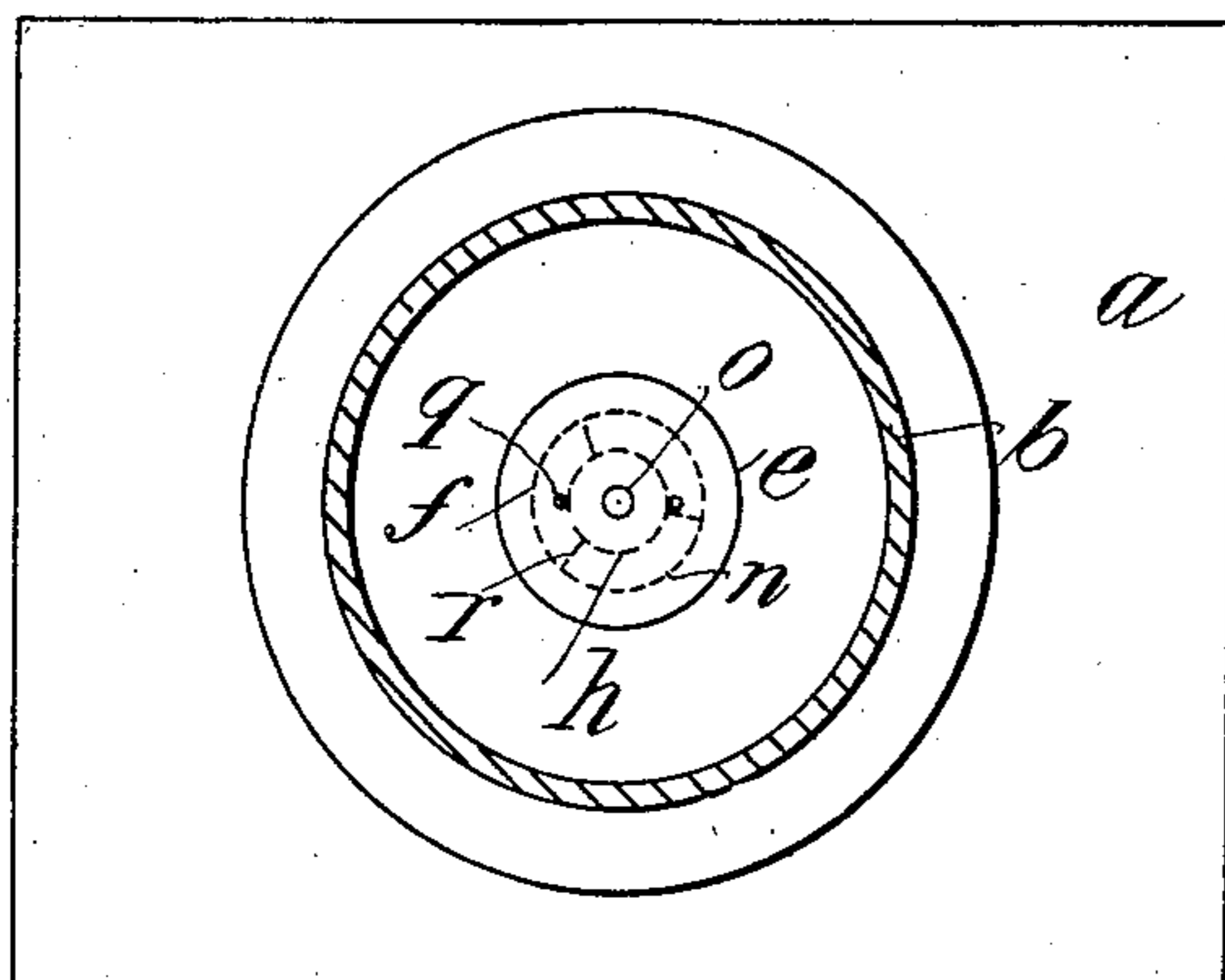
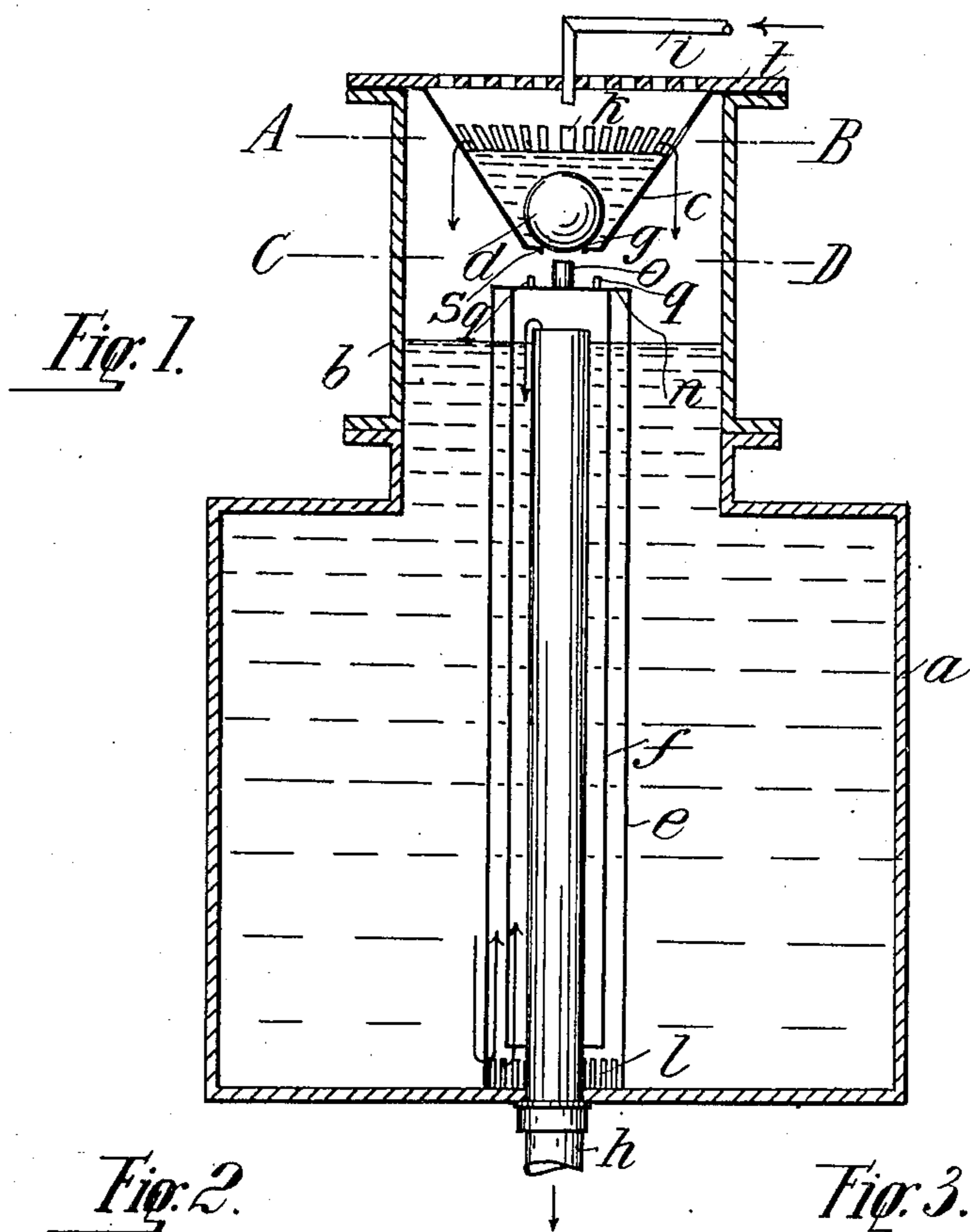


No. 882,451.

PATENTED MAR. 17, 1908.

R. BROCKE.
AUTOMATIC FLUSHING APPARATUS.
APPLICATION FILED OCT. 12, 1907.



Witnesses:

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ROBERT BROCKE, OF AACHEN, GERMANY.

AUTOMATIC FLUSHING APPARATUS.

No. 882,451.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed October 12, 1907. Serial No. 397,200.

To all whom it may concern:

Be it known that I, ROBERT BROCKE, a subject of the King of Prussia, residing at Aachen, in the Empire of Germany, have invented certain new and useful Improvements in Automatic Flushing Apparatus, of which the following is a specification.

Intermittently-acting siphon flushing devices have already become known, in which a siphon arranged in a lower compartment of the flushing cistern or tank has its vertex flooded when an outlet-valve, which is arranged in the bottom of the filling compartment mounted above said siphon, is opened by the buoyancy of a float in the siphon-compartment; the said siphon then allows the water contained in the lower siphon-compartment to run out. In this arrangement, the siphon is stationary and the conical shut-off member of the filling compartment is rigidly connected with the float by means of a rod sliding in guides. If for any reason the valve or the float of this arrangement becomes jammed or set fast, the sudden flush or outflow of water from the filling chamber is prevented and only a feeble outflow takes place, and the siphon acts solely as an overflow.

The object of the present invention is to insure the efficient action of such siphon flushing devices.

In the accompanying drawing, I have shown a siphon flushing device constructed according to the present invention.

In this drawing Figure 1 is a vertical section of the apparatus and Figs. 2 and 3 horizontal sections on the lines A, B and C, D of Fig. 1.

The apparatus, as shown in Fig. 1, consists of an outer vessel or tank *a* with a detachable head *b* at the top. This head is provided at its upper end with a perforated cover *t* in order to permit access of air. On this is suspended by means of screws the funnel-shaped vessel *c*, which is provided at the bottom with an opening *g*, which serves for the reception of the float-ball *d*. The wall of this vessel *c* is provided at the top with a number of apertures *k*, through which the water entering under pressure passes into the tank *a*. In this tank, is the stationary siphon-pipe *h* and also the floating siphon-bell. This bell is made of thin sheet copper and consists of the inner tube *f* and the outer tube *e*. The tube *e* is provided at its lower end with apertures *l* which permit the entrance of water into *e* and *f*. The tubes *e*

and *f* are connected together air-tight at the upper end by means of a cover *n*. On this cover are arranged two small pins *q* and a larger pin *o*. The former pins prevent the floating siphon-bell when rising from pressing directly against the opening *g* in the vessel *c* and the pin *o* serves to lift the float-ball *d*. The metal strips *r*, shown in Fig. 2, serve for guiding the float-bell *e* as it rises. These strips *r* extend axially of the pipe *h* and may be fastened either to the latter so as to have a sliding fit with the inner tube *f* of the bell, or they may be fastened to the inner tube *f* of the bell so as to have a sliding fit with the pipe *h* whereby the vertical movements of the float bell are guided. It is generally preferable to attach these guiding strips to the float bell as above described. In order to obtain a fluid-tight joint between the float-ball *d* and the opening *g*, the float-ball *d* is made with a cork core having an india-rubber covering, and coacts with a ground seat. The apparatus is connected by means of a pipe *i* to the mains supplying water under pressure.

The operation of the improved apparatus is as follows:—If the water under pressure enters through the pipe *i*, Fig. 1, it first fills the inner vessel *c* up to the lower edge of the apertures *k* and flows through these apertures into the large tank *a*. This water at the same time passes through the apertures *l* in the air-bell *e* into said bell and into the siphon-bell *f* and rises to a uniform height in the whole receptacle except in the fixed siphon-tube *h*. When the water has reached the height shown in Fig. 1, the air between the siphon-bell *f* and the air-bell *e* is compressed into the upper part of the space between these bells, so that the two parts (the siphon-bell *f* and air-bell *e*) connected by the cover *n* begin to float, and consequently move upwards. This motion is continued until the pin *o* touches the float-ball *d*. If the water level now rises up to the upper edge of the fixed siphon-pipe, the float-ball *d* will be lifted by the buoyancy of the floating siphon bell from the opening *g* and, since it now is quite surrounded with water, moves up to the cover *t*. The water in the tank *c* now flows through the opening *g*, which is now free, into the interior of the head *b*. By this means, a sudden rise of the water level is caused in *b* and by this means the large siphon is set in operation. The float-ball *d* by reason of its buoyancy always

maintains itself on the falling water level in *c*, whereby the whole of the water in the vessel *c* flows out unimpeded through the opening *g*. When the vessel *c* is empty, the float-ball *d* again lies in the opening *g* and closes it, so that the water under pressure entering through the pipe *i* first fills the vessel *c* and then overflows through the apertures *k* into the head *b* and tank *a*.

10 What I claim is:—

1. An automatic flushing apparatus comprising a tank, a siphon-tube vertically fixed in said tank, a siphon-bell coacting with said tube to form a siphon, a float combined with said siphon-bell, a filling chamber arranged above said siphon and having apertures in the upper part and an opening in the lower part thereof, a float-ball coacting as a valve with said opening, a projection on said siphon-bell for lifting said float-ball and means for admitting water to said filling chamber.

2. An automatic flushing apparatus comprising a tank, a fixed siphon-tube arranged in said tank, a siphon-bell coacting with said tube to form a siphon, an air-bell fixed around said siphon-bell, a filling chamber arranged above said siphon and having

apertures in the upper part and an opening in the lower part thereof, a float-ball coacting 30 as a valve with said opening, a projection on said siphon-bell for lifting said float-ball and means for admitting water to said filling chamber.

3. An automatic flushing apparatus comprising a tank, a head detachably mounted on said tank and provided with perforations in its upper part, a conical filling vessel mounted in said head and provided with water-outlet-apertures in its upper part and 40 with an open bottom forming a valve-seat, a spherical float-valve arranged in said filling vessel and coacting with said valve-seat, a water-supply pipe to said filling vessel, a vertical siphon-tube fixed in said tank and 45 open at its upper end, a siphon-bell coacting with said siphon-tube, a float combined with said siphon-tube, and a projection on said siphon-bell for lifting said float-valve.

In testimony whereof I have hereunto set 50 my hand in presence of two subscribing witnesses.

ROBERT BROCKE.

Witnesses:

WILLIAM J. REUTERS,
HENRY QUADFLIEG.