

No. 635,190.

Patented Oct. 17, 1899.

C. SALZBERGER.
WATER FILTER.

(Application filed Feb. 4, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

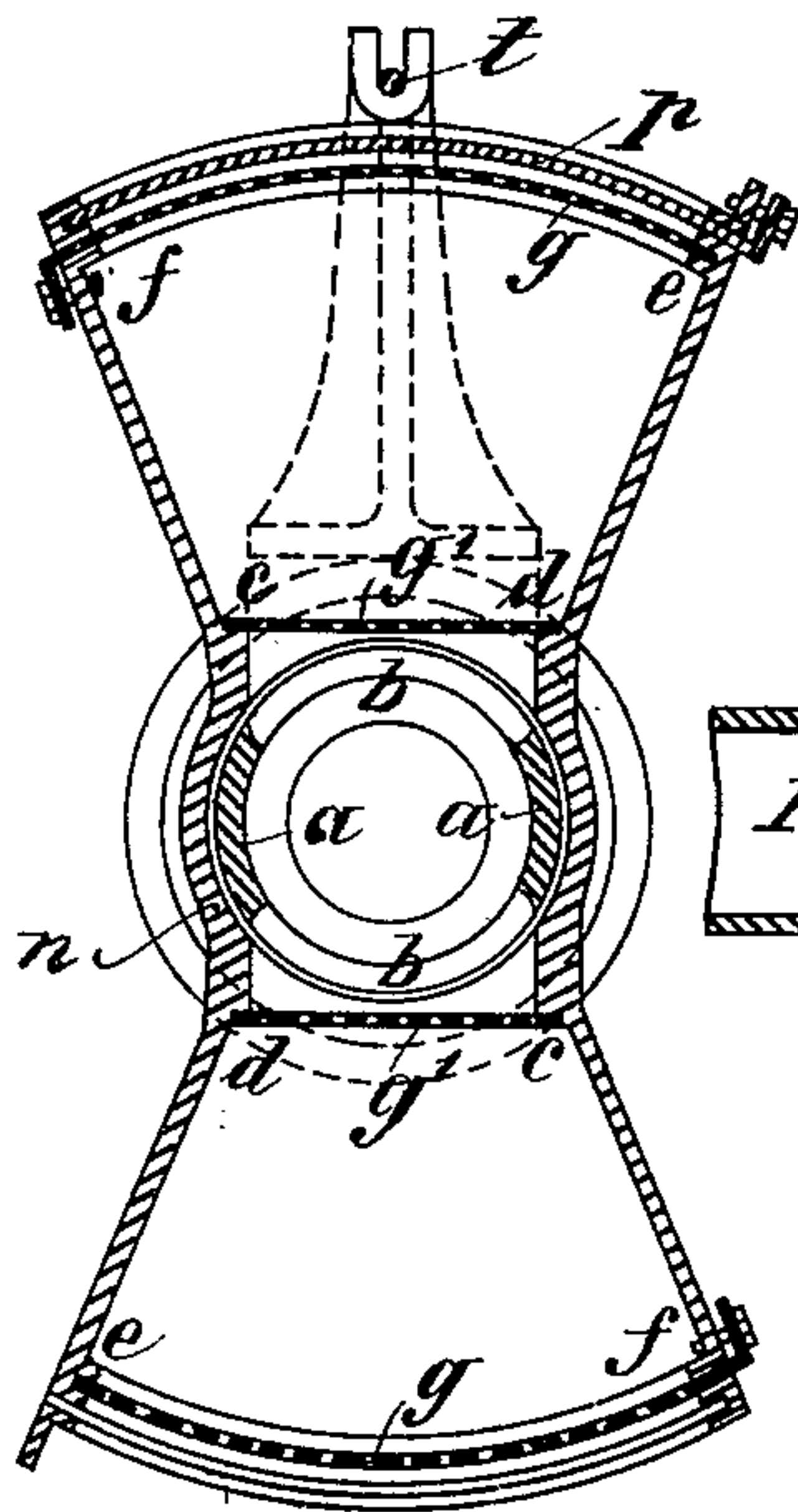


Fig. 2.

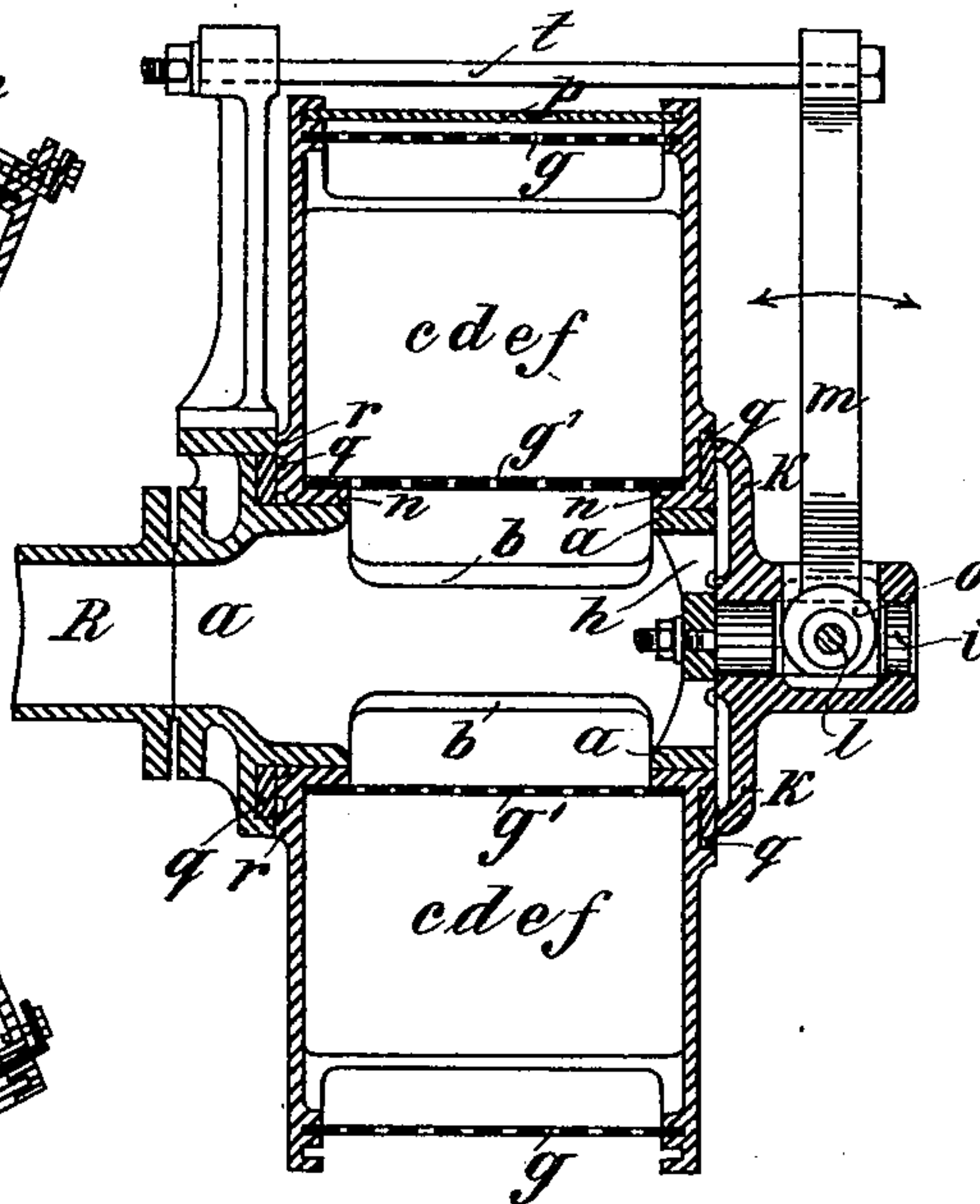


Fig. 3.

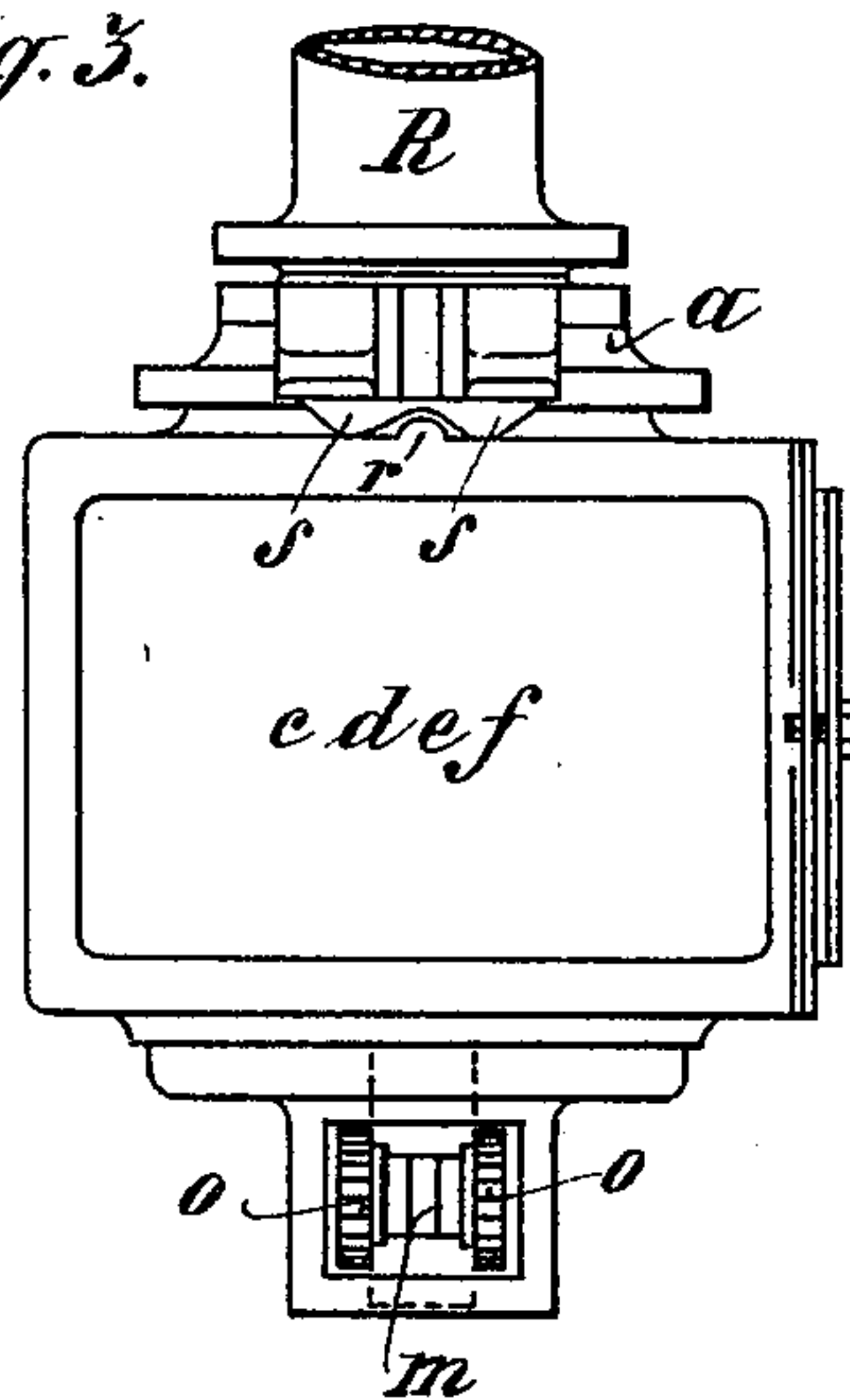
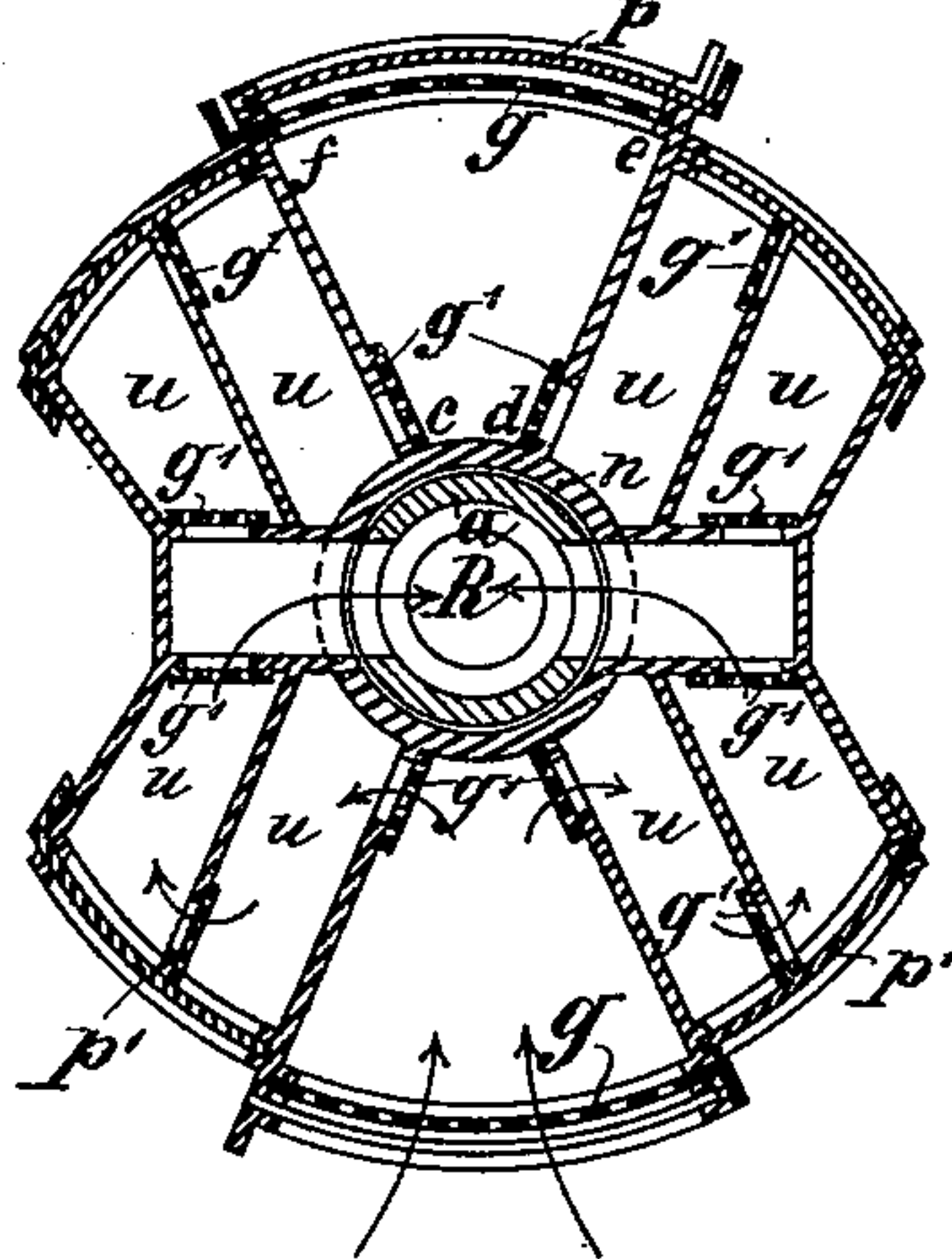


Fig. 4.



Witnesses:
Julius Schut
David B. Owens

Inventor:
Carl Salzberger.
By *Wm. H. [Signature]*

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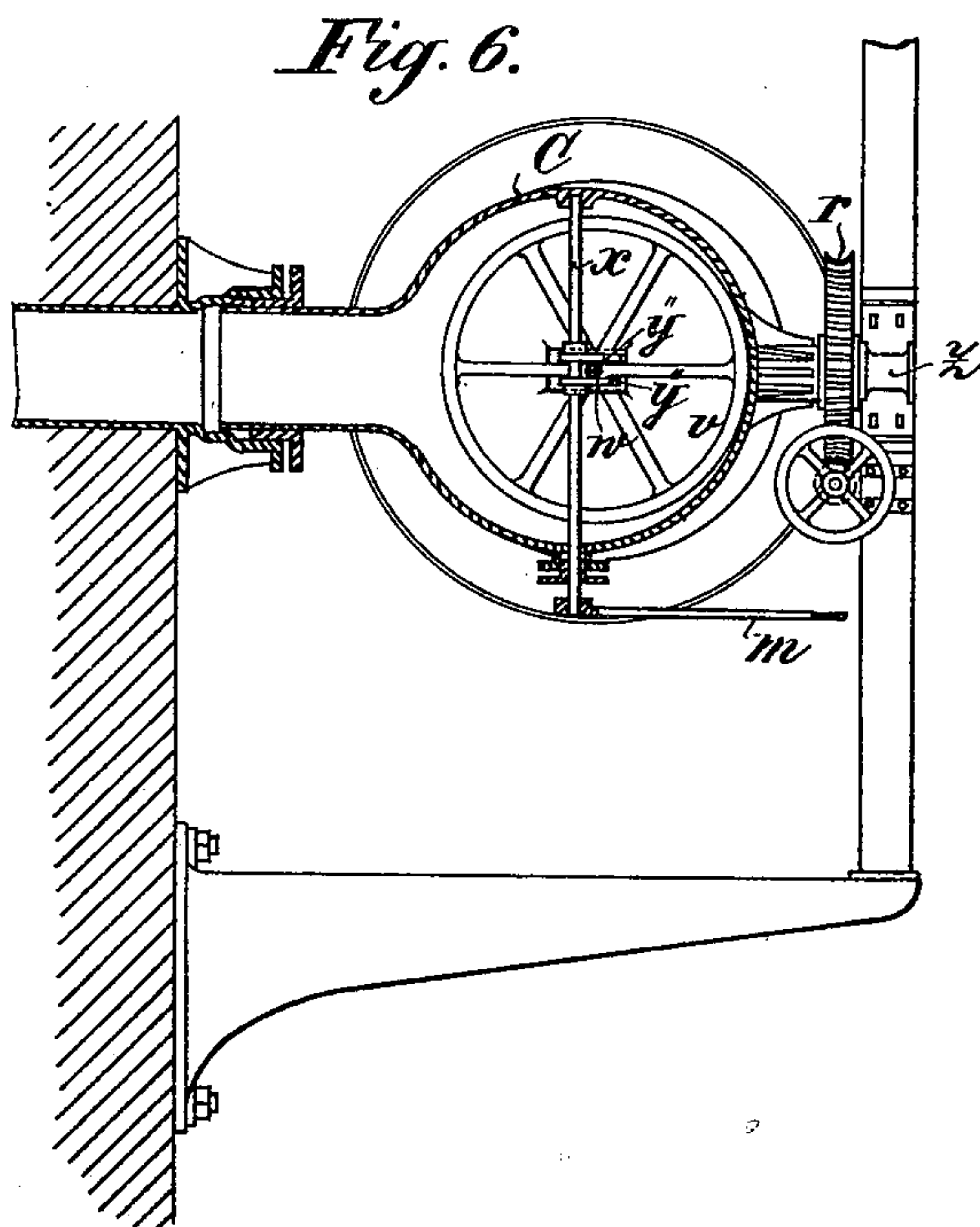
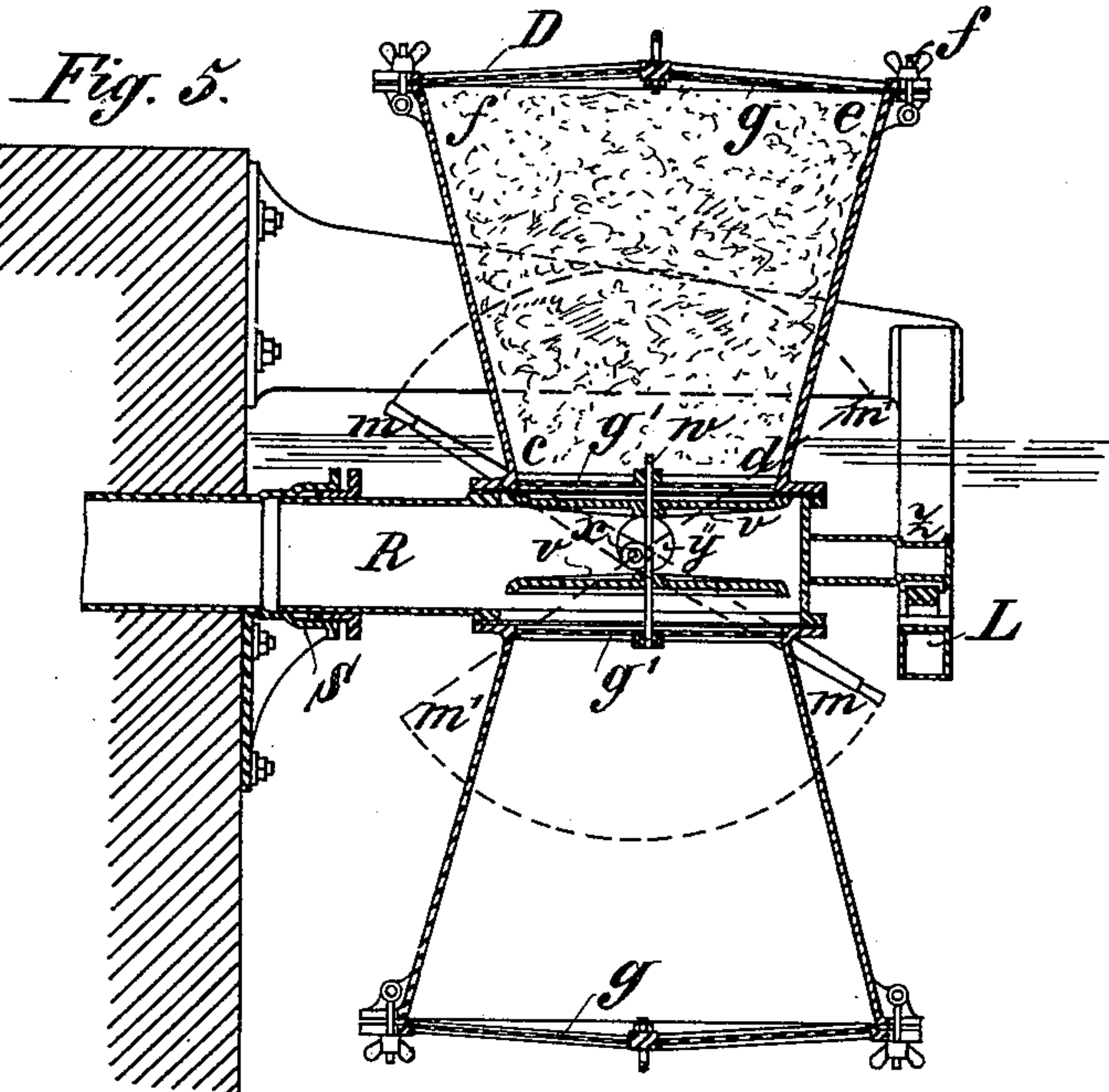
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:
J. Lindholm
Arac B. Stevens.

Inventor:
Carl Salzberger.

By *Munn*
Attorneys.

UNITED STATES PATENT OFFICE.

CARL SALZBERGER, OF BURGSTEINFURT, GERMANY.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 635,190, dated October 17, 1899.

Application filed February 4, 1899. Serial No. 704,479. (No model.)

To all whom it may concern:

Be it known that I, CARL SALZBERGER, a subject of the King of Prussia, Emperor of Germany, residing at Burgsteinfurt, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Apparatus for Purifying Water from Mud and Sand Contained Therein, (for which I have applied for a patent in Germany, and which application is dated July 8, 1898,) of which the following is a specification.

This invention relates to an apparatus by means of which water containing mud and sand is purified, the working of this apparatus being continual. For this purpose the conduit-pipe leading the purified water to a well or reservoir is connected by a flange with a tubular piece *a*, Figures 1 and 2, which is provided with two or more openings *b*. A nave *n*, around which are arranged two or more chambers *c d e f*, is connected in a rotatable manner with the said tubular piece *a*. The chambers are shut off toward the tubular piece *a* and to the outside by perforated plates or wire-gauzes *g* and *g'*. The plates *g* are movable in rabbets, while the plates *g'* are detachable from the nave *n*. The tubular piece *a* is provided on one side with a nave-cross *h*, serving to receive a bolt *i*. The bolt *i*, which is used for guiding the cover *k*, is perforated perpendicularly to the longitudinal axis in the middle plane. This perforation serves to receive a bolt *l*, on which pivots the lever *m*, firmly connected with two eccentrics *o*. By the movement of the lever *m* and of the eccentrics *o* the cover *k* is pressed against the filtering apparatus or removed therefrom, respectively.

The chambers *c d e f* are filled with wood-wool, gravel, or with another suitable filtering material. (See Fig. 5.) To have at any moment a chamber with fresh filtering material ready for use, the upper opening is closed by a plate *p*, while on the lower side the chambers are open, so that the water to be purified can enter the pipe *R*. By means of rings *q*, of leather, wood, india-rubber, or the like, a tightening of the apparatus against the outer impure water is insured.

If the chambers *c d e f* are to be filled or emptied, the nut of the screw *t* is loosened, so

that the lever *m* can be withdrawn from the apparatus.

After the cover *p* has been removed the apparatus can be caused by a simple pressure by hand to make half a revolution around the tubular piece *a*.

To prevent the chambers *c d e f* from automatically moving during the working, there are cast near the nave *n* on the outside of the chambers two crank-pins *r*, one of which is always engaged between two corresponding crank-pins *s*, (see plan view, Fig. 3,) provided on a suitable place on the tubular piece *a*.

Fig. 4 is a diagram of such a purifying apparatus wherein the water makes a considerably longer way through the filtering material. In accordance with the increased number of inlet-openings to the pipe *R* the number of the perforated plates *g* has been increased. The chambers *u*, through which the water to be purified must flow, are likewise shut off against the discharge-pipe *R* by perforated plates or wire-gauzes. The complete closure of these chambers *u* outward is effected by means of four sheet-metal slides *p'*. The chambers *u* are filled with filtering material. (See Fig. 5.)

The manner of working the described apparatus shown in Figs. 1 and 2 is as follows: The pipe *R*, to which is fixed the apparatus, is under the water-level of the river, brook, pond, or tank the water of which is to be purified before its utilization. In the chambers directed downward the openings of the perforated plate or of the sieve *g* are free, so that the water can enter the apparatus. The impurities contained in the water are deposited in the filtering material contained in the chambers *c d e f*. The water purified in this manner is led off then through the pipe *R* to the place of consumption. In order to avoid any interruption in the working which may result from the necessary cleaning of the apparatus or from the substitution of the filtering material, the upper chamber is to be considered as a reserve filtering-chamber. The sheet-metal slide *p* has for its purpose to protect the reserve filtering material against a premature utilization. For making use of the apparatus the nut of the connecting-screw *t* is loosened and the disk *k* withdrawn by the

lever *m* from the apparatus. The sheet-metal slide *p* is then removed, and the apparatus is turned through one hundred and eighty degrees, so that the chamber containing the fresh filtering material plunges into the water. The disk *k* is then replaced, the filtering material used is removed from the chamber being now above, and the latter is provided again with fresh filtering material, whereupon the slide *p* is inserted again for protecting the filtering material against a premature utilization.

The manner of working the apparatus shown in Fig. 4 is in such a manner that the water to be purified must make a longer way through the chambers *u*, arranged on the side of the chambers *c d e f*, as is indicated by the arrows. The sheet-metal slides *p* have here also the purpose of protecting the filtering material against a direct use, while the slides *p'* serve to withdraw the filtering materials from the chambers *u* and to replace them by fresh ones. In other regards the manner of working the apparatus, Fig. 4, is exactly the same as that of the apparatus in Fig. 1.

Figs. 5 and 6 show a modified construction of the apparatus represented in Figs. 1 and 2. As may be seen from the drawings, the filter-chambers *c d e f* are secured to a hollow cylinder *C*, to which is cast on one side a trunnion *z* and which terminates on the other side with a pipe *R*. The trunnion *z* is supported in a rotatable manner in an ordinary bearing *L* and the end of the pipe *R* in a stuffing-box *S*. The apparatus is put in revolution by means of a worm-gear *r*. The part of the filter-chamber which is out of work is shut off toward the other half which is in activity. For this purpose there are provided two covers *v*, secured to a common axis *w*. The two covers are supported in such a manner that they can be displaced in the direction of the axis *w* by a pair of eccentrics *y''*, fixed to a common axis *x*. The displacement of the covers *v* is effectuated by means of a lever *m* fastened to the axis *x*.

I claim—

1. A filter, having a stationary central tube with an opening therein, a filter-casing mounted to turn on the tube and having a number of filter-chambers therein, screens fitted in and forming walls for the chamber and adapted to hold the filtering material between them,

and means for closing the chambers whereby one chamber may be used to the exclusion of the others.

2. A filter, having a stationary central tube with an opening therein, a filter-casing mounted to turn on the tube and having a plurality of chambers each capable of having communication with the opening in the tube, and means for closing the several chambers, the said means being independently operative.

3. A filter, having a stationary central tube with two openings therein, a filter-casing mounted to turn on the tube and having two chambers respectively in communication with the openings, and means for closing the several chambers, such means being operative to permit the use of one filter-chamber to the exclusion of the other.

4. A filter, having a stationary central tube formed with a plurality of openings therein, a filter-casing mounted to turn freely on the tube and having a plurality of chambers therein registering with the openings in the tube, and closures commanding the several chambers.

5. In a filter, the combination of a stationary central tube having openings therein, a filter-casing mounted to turn on the tube and having chambers respectively registering with the openings, the chambers having perforate walls through which the water passes into the tube, and a means for each chamber by which the chambers may be closed to prevent the passage of water therethrough.

6. In a filter, the combination of a stationary central tube having openings therein, a filter-casing mounted to turn on the tube and having chambers capable of registering with the openings, the chambers having perforate walls through which the water may pass to the tube, and a cover or covers capable of sliding over the perforate walls of the chambers at the outer portions thereof, whereby to prevent the passage of water into the chambers.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARL SALZBERGER.

Witnesses:

R. E. JAHN,
OTTO KÖNIG.