

No. 750,330.

PATENTED JAN. 26, 1904.

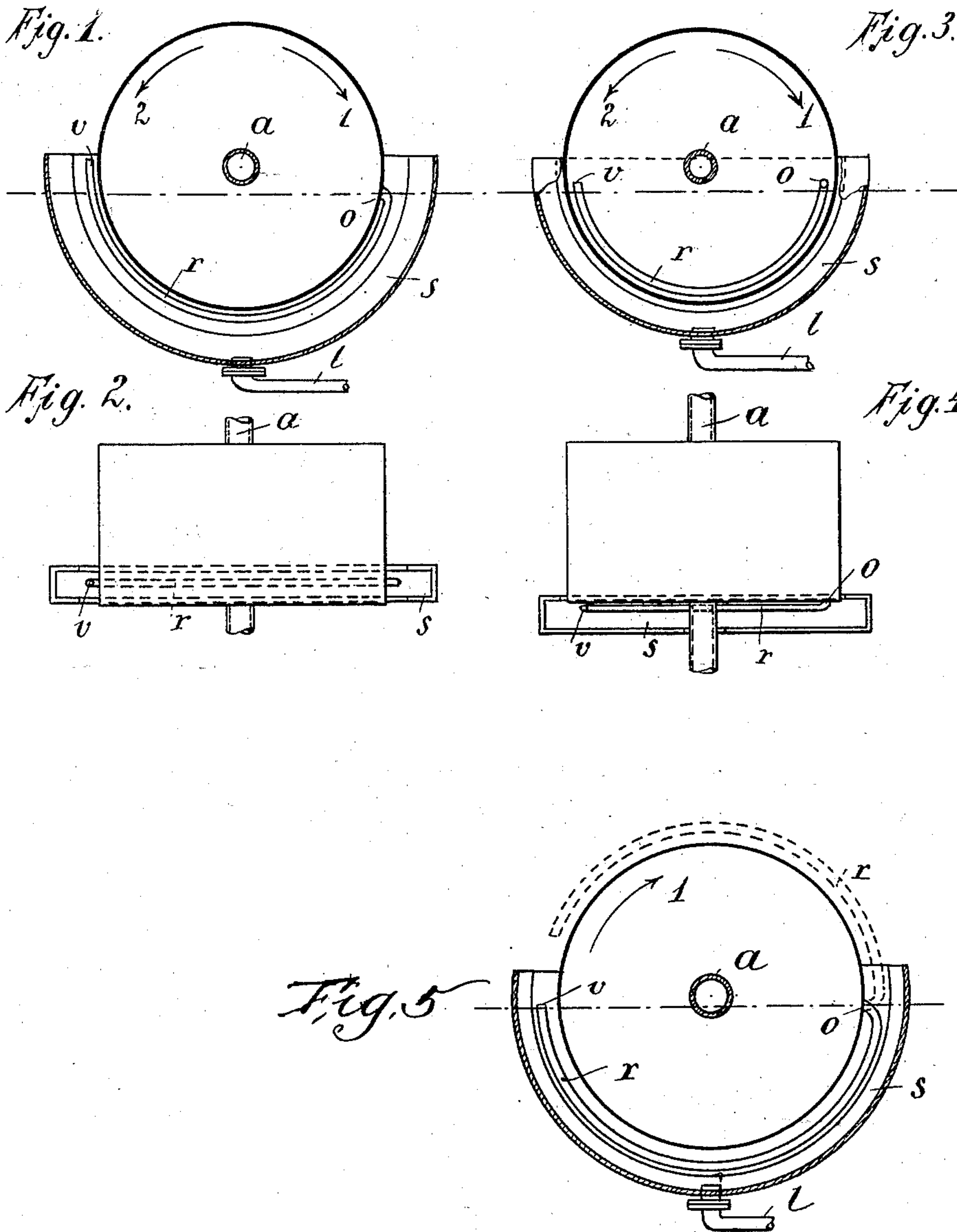
A. WÜNSCH.

ROTARY VESSEL WITH CHARGING OR DISCHARGING MEANS.

APPLICATION FILED JAN. 21, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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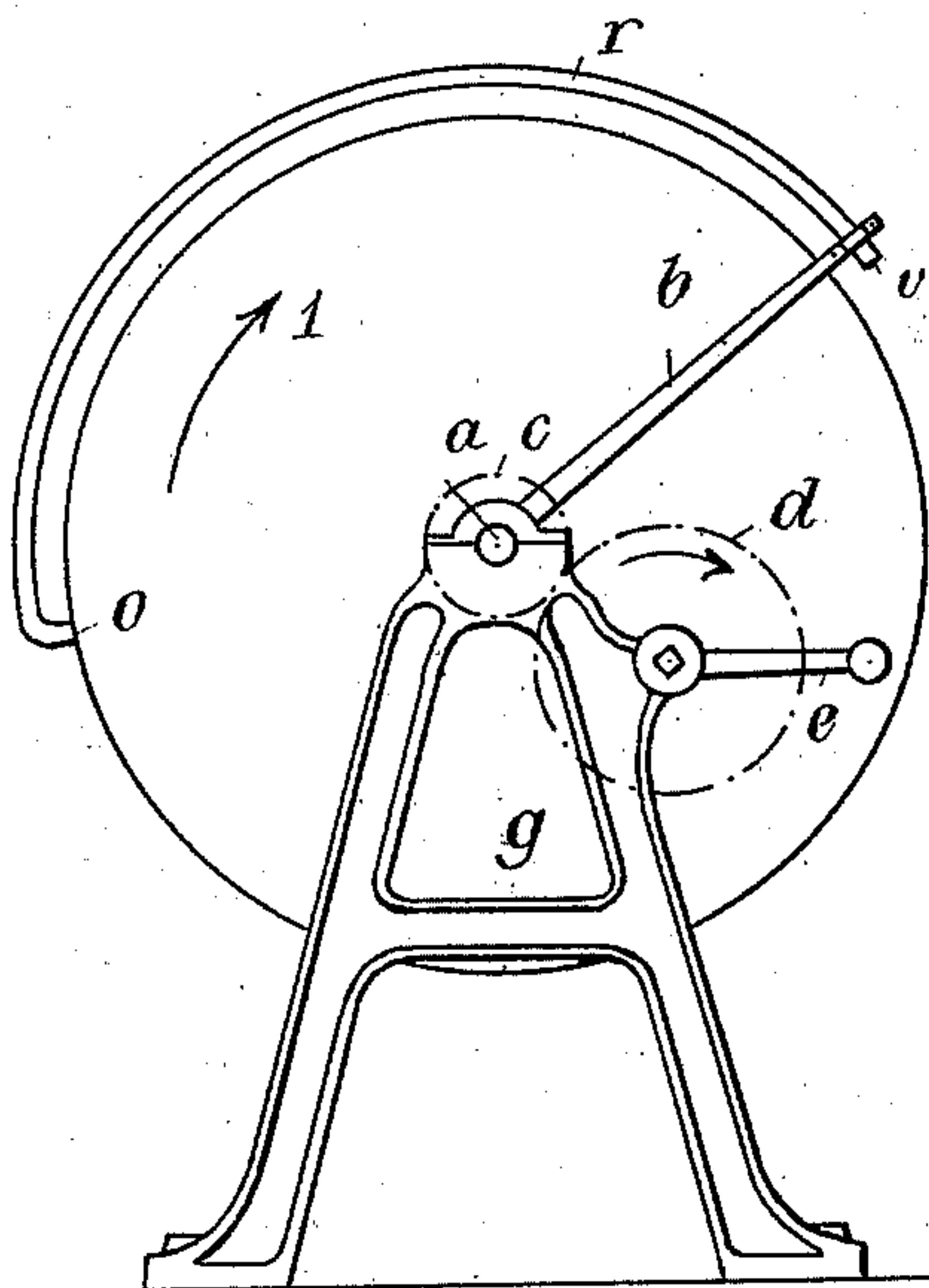


Fig. 6.

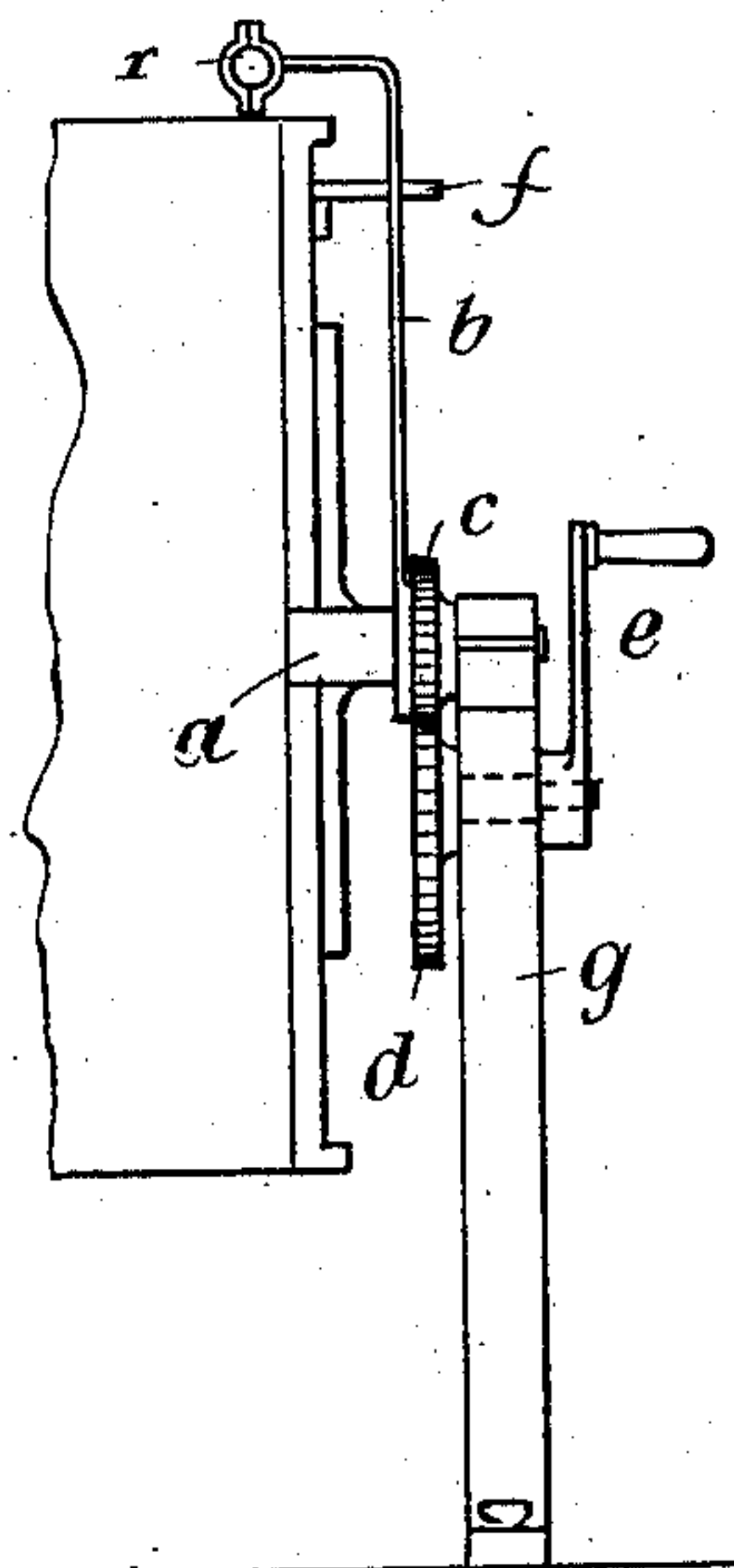


Fig. 7.

Witnesses

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# UNITED STATES PATENT OFFICE.

ALOIS WÜNSCH, OF PRAGUE-SMICHOW, AUSTRIA-HUNGARY.

## ROTARY VESSEL WITH CHARGING OR DISCHARGING MEANS.

SPECIFICATION forming part of Letters Patent No. 750,330, dated January 26, 1904.

Application filed January 21, 1902. Serial No. 90,700. (No model.)

*To all whom it may concern:*

Be it known that I, ALOIS WÜNSCH, a citizen of the Empire of Austria-Hungary, residing at Prague-Smichow, Austria-Hungary, have invented certain new and useful Improvements in Rotatory Vessels with Charging or Discharging Means, of which the following is a specification.

While the supply of fluid to rotary vessels may be effected without difficulty during the rotation of the vessel through its hollow axis, hitherto the discharge of the fluid contents or a part of the same could not conveniently be carried out during the rotary movement of the vessels. For this purpose either holes were provided in the circumference of the rotary vessel, adapted to be closed by plugs, or the supply-opening was also used for the discharge. In both cases the rotary vessel had to be stopped for the discharge of its contents, which was not only inconvenient, but caused loss of time and work and necessitated the employment of special devices for collecting the liquid or the like. According to known constructions the hollow axle of rotary vessels is used during the rotation to effect the discharge of the fluid contents. It is, however, necessary to arrange in the interior of the vessel means for collecting the liquid contents, which devices are complicated and apt to injure goods—for instance, leather, skins—rotating in the vessel. Moreover, it is necessary to use the hollow axle for the discharge operation, and it cannot therefore be readily used for filling the vessel during rotation. The discharge must be effected continuously, while it would be advantageous sometimes if the discharge could at any time be stopped or cut off.

The present invention allows a discharge of liquid or fine-grained material from rotary vessels while the same are in a state of rotation.

The invention relates particularly to the arrangement of pipes or conduits of sufficient length around the circumference of the rotating vessel, said conduits communicating at one end with the interior of the drum and being open at their outer end. Further, the vessel is preferably provided with a revers-

ing device which renders it possible to reverse the direction of rotation of the vessel at any moment. The latter can easily be effected by the well-known double impetus arrangement by means of a straight and a crossed belt, one of which runs always on the loose pulley interposed between the two fixed pulleys.

The present apparatus is principally used for the treatment of leather, woven material, and the like with liquids—such as, for instance, tanning or dyeing solutions, wash-waters, and other liquids, wherein different liquids can be used in turn. These liquids enter through the hollow axis during the rotation of the vessel and are discharged through semicircular tubes, pipes, channels, or conduits on the circumference of the vessel at any convenient time. This neither necessitates the opening nor momentary stoppage of the vessel nor the removal of the goods, and a stained appearance of the latter, especially when leather or woven goods are treated with dyeing solutions is therefore avoided.

It is not easy to enumerate all branches of industry in which the present invention could be employed; but generally the present device for discharging liquids from vessels during their rotation will be found useful in all cases where goods have to be treated in rotating vessels with liquids or fine-grained material or where different solutions are to be mixed.

The most suitable forms in which the present invention can be adapted in a practical manner are represented in the accompanying drawings, in which—

Figure 1 shows a practical construction in which discharge-pipes are used and are concentrically arranged about the circumference of the vessel. Fig. 2 is a plan view of Fig. 1. Fig. 3 shows an arrangement of a discharge-pipe on the side of the rotating vessel near the circumference. Fig. 4 is a plan view of Fig. 3. Fig. 5 represents a practical form of construction in which flexible tubes, preferably of caoutchouc, are used instead of pipes or channels fixed to or forming part of the vessel. Figs. 6 and 7 show in front and side view, respectively, a device for turning or reversing the flexible tube or tubes in one or the other direction.



In Figs. 1 to 5, inclusive, the holding means for the flexible conduit have been omitted.

The apparatus shown in Figs. 1 to 4 consists of a drum rotating about a hollow axis *a*, a pipe or pipes *r* being concentrically arranged either upon its circumference (see Fig. 1) or on one or both ends. (See Fig. 3.) Below the pipe or pipes *r* is a discharge-trough *s*, which partially surrounds the circumference of the drum and from which the liquid received by it can be discharged through a conduit *l*. The pipe *r* terminates at *o* in the drum, while its other end *v* is on the outside and open and forms either the inlet or the discharge end of the pipe, according to the direction of the rotation of the vessel.

The arrows 1 and 2 are used to indicate the direction of rotation of the vessel. When the vessel rotates in the direction shown by the arrow 1, the discharge of its liquid contents is rendered impossible, because the discharge-opening *v* of the pipe or pipes *r* is always located above the level of the liquid before the charge-opening *o* passes below the level of the liquid, the contents of the vessel which enter the pipe *r* flowing back into the vessel. If the vessel is rotated in the opposite direction, (arrow 2,) the liquid contents of the vessel pass into the pipe *r* as soon as the charge-opening *o* passes below the level of the liquid and continues until this opening in consequence of the rotation of the vessel appears above the level of the liquid on the other side. The contents of the pipe *r* are discharged outwardly through the end *v* and fall into the collecting-trough *s* to be discharged through the pipe *l*.

According to the form shown in Figs. 1 to 4, one or more pipes, hose, or semi-annular conduits may be arranged.

A modified form of the apparatus shown in Figs. 1 to 4, in which flexible tubes, Fig. 5, are employed instead of fixed pipes or channels, has the particular advantage that charging or discharging can be effected even when no special reversing device is provided. In order to cause the openings *o* and *v* to act either as inlet or discharge orifices while the vessel rotates only in one direction, it is only necessary to change the position of the pipes, which is possible owing to the flexibility of the material. When the vessel rotates in the direction indicated by the arrow 1, Fig. 5, and the flexible hose is in the position shown in full lines, the contents of the vessel which enter the pipe *r* at each revolution will flow back into the vessel. However, when the hose *r* is turned into the position shown in dotted lines and the previous direction of the rotation is maintained the end *o* of the tube which was formerly the rear end now becomes the

fore end, with the result that the contents of the vessel entering the tube *r* during the rotation are discharged into the discharge-conduit *s*. The flexible tube can be easily brought into the required position (shown in dotted lines) during a short stoppage of the vessel or by a device for turning the tubes during rotation of the vessel and can be held in position in any suitable manner.

Figs. 6 and 7 show a device by means of which the tubes *r* can be reversed either during a short stoppage of the rotation of the vessel or during continuous rotation of the same. The apparatus consists, essentially, of a toothed wheel *c* on a shaft *a* and rigidly connected with a radial arm *b*, to the outer end of which is secured the free end of the hose *r*. A larger gear-wheel *d* engages with the wheel *c* and is so mounted on the frame *g* as to be capable of being rotated by means of a hand-crank *e* in one or the other direction while the vessel rotates. By turning the wheel *d* in the direction indicated by the arrow, Fig. 6, it will be easily seen that the hose *r* will be reversed by the arm *b*. In order to limit the movement of the arm *b* and to fix the tube in its correct position, a stop device *f* is used. After reversing the tube the crank *e* is removed and the wheels *c* and *d* continue to rotate with the vessel, while when a reversal of the hose is again required the crank *e* is replaced on the spindle of the wheel *d* and is rotated in the opposite direction until the tube is turned into the required position.

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

1. In an apparatus of the character described, the combination with a rotary vessel, of means for charging and discharging the contents thereof, including a flexible semi-annular conduit communicating at one end with the interior of the vessel and open at its other end, and means for holding the flexible conduit, substantially as described.

2. In an apparatus of the character described, the combination with a rotary vessel, of means for charging and discharging the contents thereof, including a flexible semi-annular conduit communicating at one end with the interior of the vessel, and open at its other end, and means for reversing the direction of the flexible conduit round the circumference of the vessel, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALOIS WÜNSCH.

Witnesses:

ARTHUR SCHWEINBURG,  
ADOLPH FISCHER.