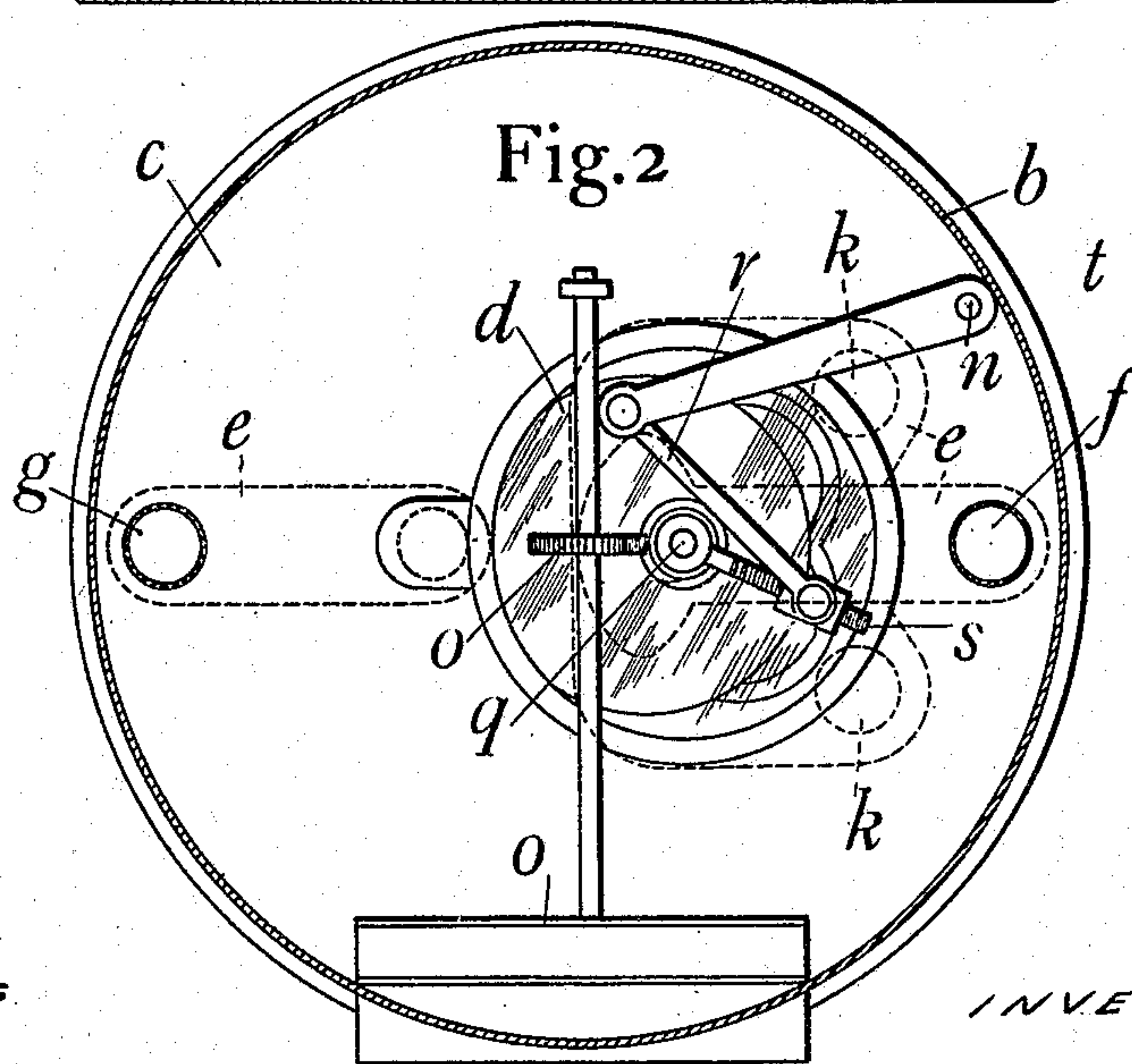
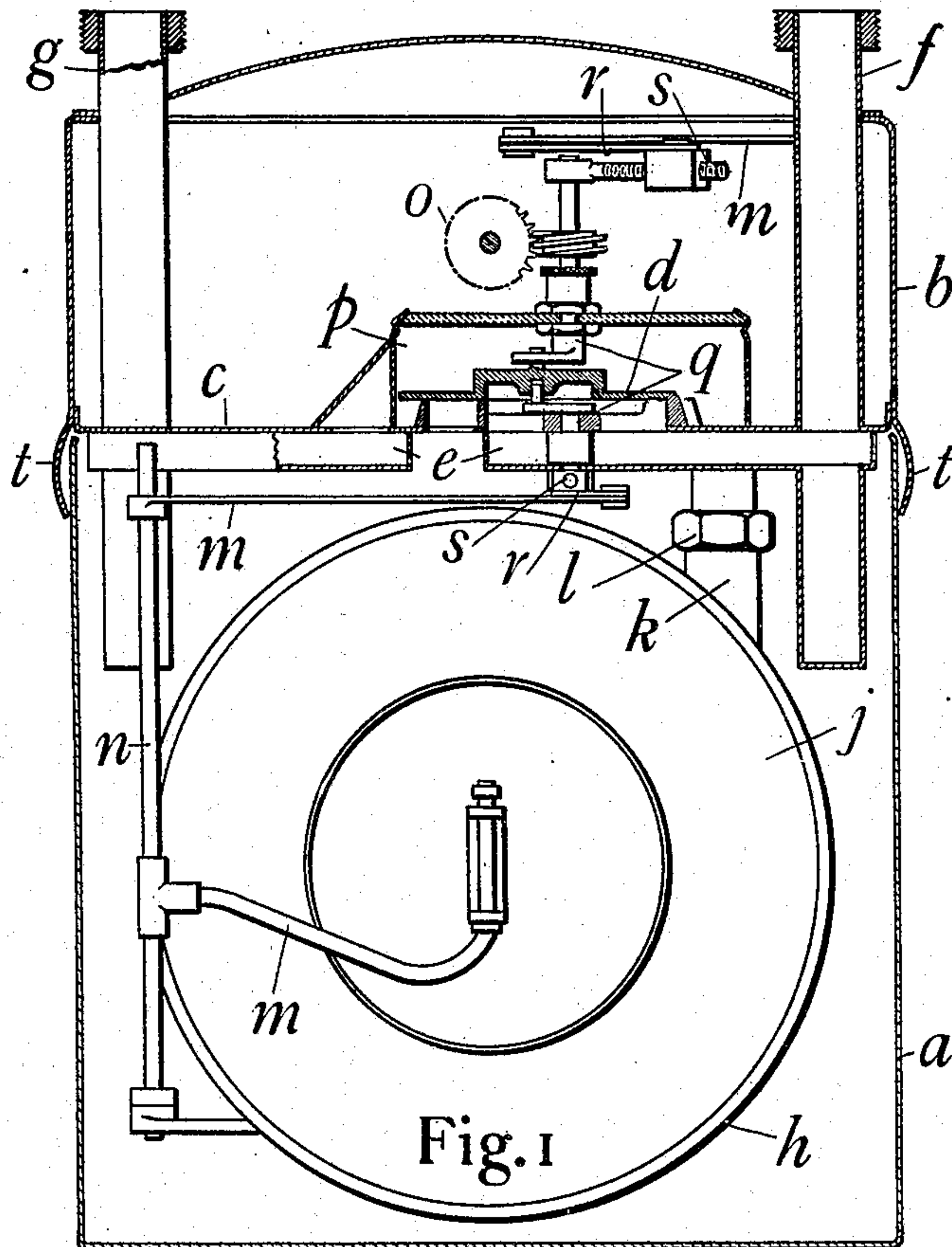


A. G. SUTHERLAND.
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APPLICATION FILED DEC. 9, 1908.

930,435.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.



WITNESSES

W. P. Burke
A. J. Houman

INVENTOR

Andrew Guthrie Sutherland.
BY *Wm. M. M. M. M.* ATT'Y

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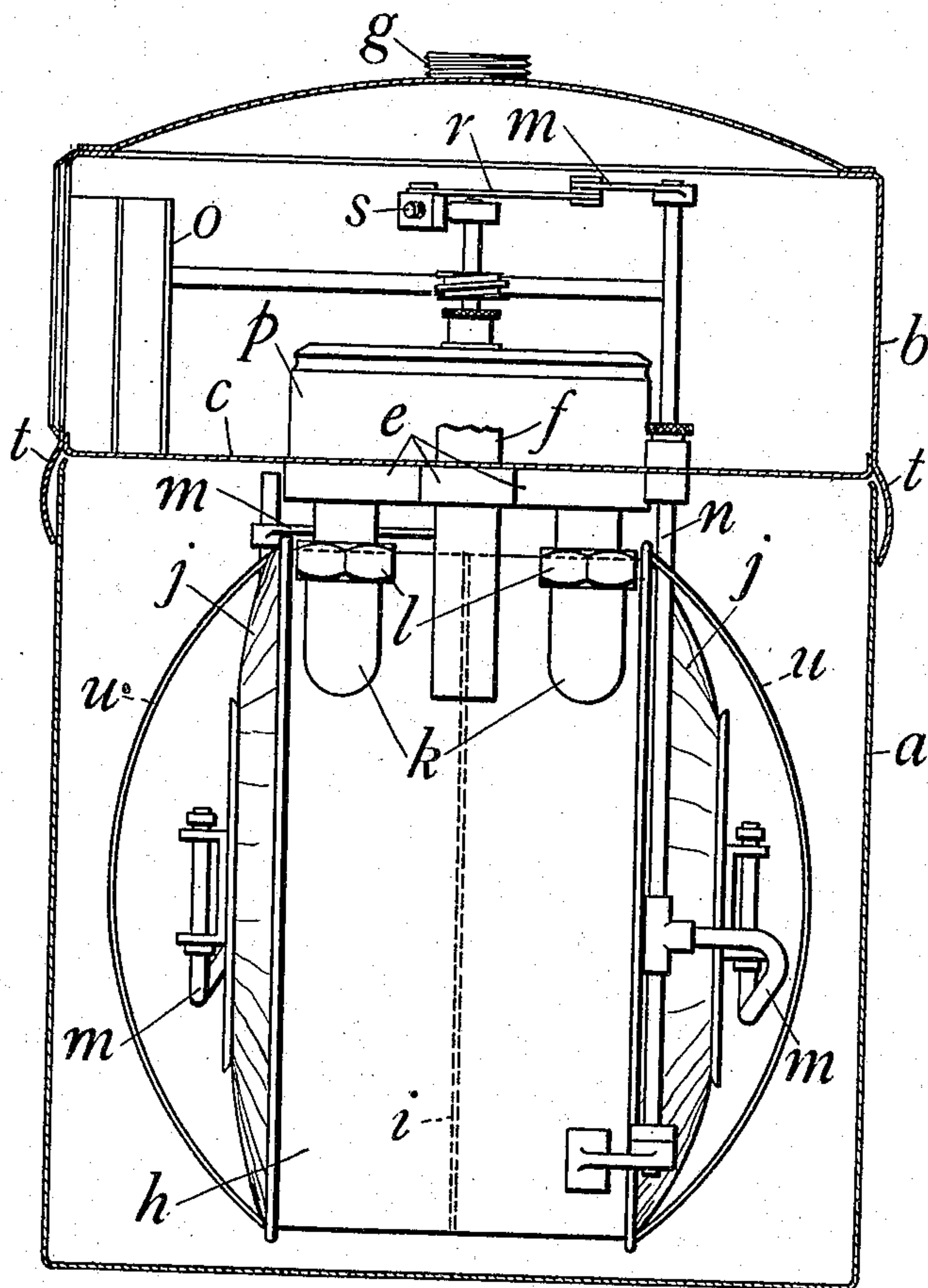


Fig. 3

WITNESSES

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UNITED STATES PATENT OFFICE.

ANDREW GUTHRIE SUTHERLAND, OF ERDINGTON, ENGLAND.

GAS AND WATER METER.

No. 930,435.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed December 9, 1908. Serial No. 466,708.

To all whom it may concern:

Be it known that I, ANDREW GUTHRIE SUTHERLAND, subject of Great Britain, residing at Bromford House, Erdington, in the county of Warwick, England, have invented new and useful Improvements Relating to Gas and Water Meters, of which the following is a specification.

This invention relates to dry gas meters and also water meters and comprises the improvements hereinafter described whereby I am enabled to simplify the construction of such meters, and facilitate repairs.

Referring to the two accompanying sheets of explanatory drawings:—Figure 1 is a sectional front elevation, Fig. 2 a sectional plan taken just below the top of Fig. 1, and Fig. 3 a sectional elevation taken through the right hand end of Fig. 1 of a meter constructed in accordance with this invention.

The same reference letters in the different views indicate the same parts.

In carrying the invention into effect I adopt a circular form of body, the lower part *a* of which serves as a measuring compartment and the upper part *b* as a compartment for the controlling and registering mechanism. The two compartments are divided by a partition or valve plate *c* which carries a rotary controlling valve *d* and has a number of passages *e* whereby the inlet and outlet pipes *g* and *f* are respectively put into communication with the aforesaid measuring compartment and either of a pair of dilatable chambers carried as hereinafter described by the said plate *c*. The dilatable chambers are comprised by a cylindrical outer part or trunk *h* containing a central partition *i* and having secured to each outer edge by a wire ring or otherwise a flexible leather, india rubber or other impervious cover or diaphragm *j*. Connection between each chamber and the appropriate passage on the valve plate aforesaid is effected by a branch pipe *k* and union *l*. By such connection the chambers are also supported from the valve plate. Ordinary devices such as levers *m* connected to the vertical stems *n* transmit the motions of the diaphragms to the valve actuating mechanism and also the usual registering mechanism *o*. The said devices are also supported on the valve plate or on the trunk *h* of the dilatable compartments. On disconnecting the joint ring *t* between the upper portion *b* and the lower portion or measuring compartment *a* of the meter, and separating

the portions, the whole of the interior mechanism in the compartment *a* comes away with the upper portion *b*, thus rendering the said mechanism very conveniently available for inspection or repair.

The valve and its seating are suitably constructed to control the passage of gas or water from the valve chest *p* through the three measuring chambers (viz:—those within the part *h* and that formed by the lower outer part *a* of the meter case) to the outlet pipe *f*. To rotate the valve vertical stems *q* are employed in conjunction with suitable links *r* and levers *s* connected to the diaphragm actuated parts of the mechanism, the said stems *q* being cranked and connected to the upper and lower sides of the valve as shown.

In water meters, excessive outward movements of the diaphragms, under the action of excessive pressure in the inner measuring chambers may be prevented by suitable perforated metal guards or caps *u* Fig. 3.

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

1. In gas and water meters, the combination with detachable body portions forming upper and lower compartments, of a partition plate separating the compartments and connected with the upper portion, a valve and valve chest mounted on the upper side of the partition plate, passages at the underside of the said plate, measuring chambers arranged in the lower compartment, branch pipes and unions detachably connecting the said chambers to the passages, flexible diaphragms in conjunction with the measuring chambers, means supported by the chambers and transmitting motion from the diaphragms to the valve, and a joint detachably connecting together the upper and lower body portions, substantially as set forth.

2. In gas and water meters, the combination with detachable body portions forming upper and lower compartments, of a partition plate separating the compartments and connected with the upper portion, a valve and valve chest mounted on the upper side of the partition plate, passages at the under side of the plate, a cylindrical trunk and a partition therein forming measuring chambers arranged in the lower compartment, branch pipes and unions detachably connecting the measuring chambers to the said passages, flexible diaphragms in conjunction with the

chambers, rods and levers supported by the measuring chambers and operated by the diaphragms, means for transmitting motion from the rods to the valve, and a joint ring detachably connecting together the upper and lower body portions, substantially as set forth.

3. In gas and water meters, the combination with detachable body portions forming upper and lower compartments, of a partition plate separating the compartments and connected with the upper portion, a valve and valve chest mounted on the upper side of the partition plate, passages at the underside of the plate, a cylindrical trunk and a partition therein forming measuring chambers arranged in the lower compartment, branch pipes and unions detachably connect-

ing the measuring chambers to the said passages, flexible diaphragms in conjunction with the chambers, rods and levers supported by the measuring chambers and operated by the diaphragms, means for transmitting motion from the rods to the valve, a joint ring detachably connecting together the upper and lower body portions, and guards preventing excessive distention of the diaphragms, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW GUTHRIE SUTHERLAND.

Witnesses:

JOHN MORGAN,

ARTHUR V. BLAKEMORE.