

No. 886,434.

PATENTED MAY 5, 1908.

J. H. STEWART.
CONCRETE MIXER.

APPLICATION FILED JAN. 25, 1907.

3 SHEETS—SHEET 1.

Fig. 1.

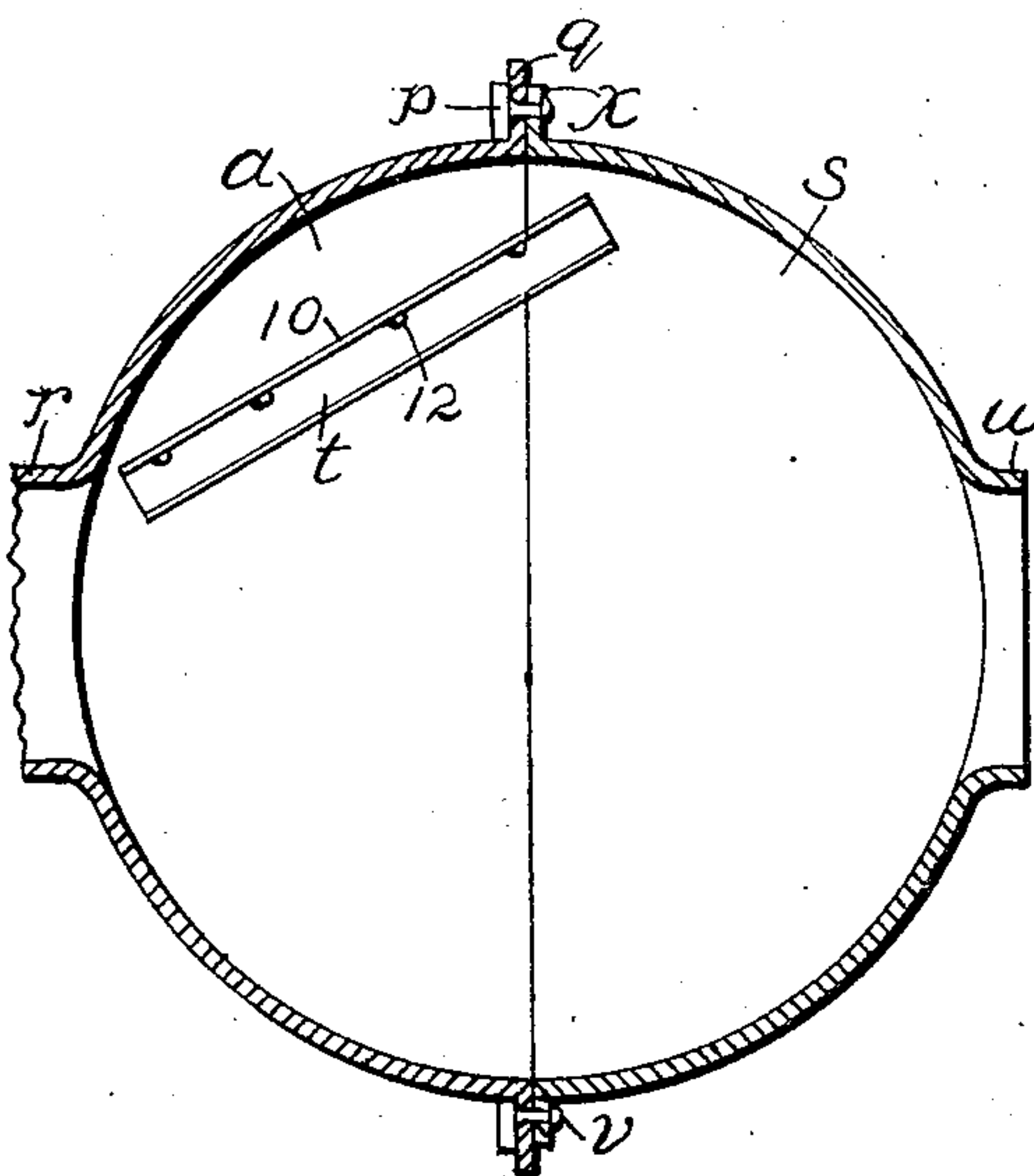
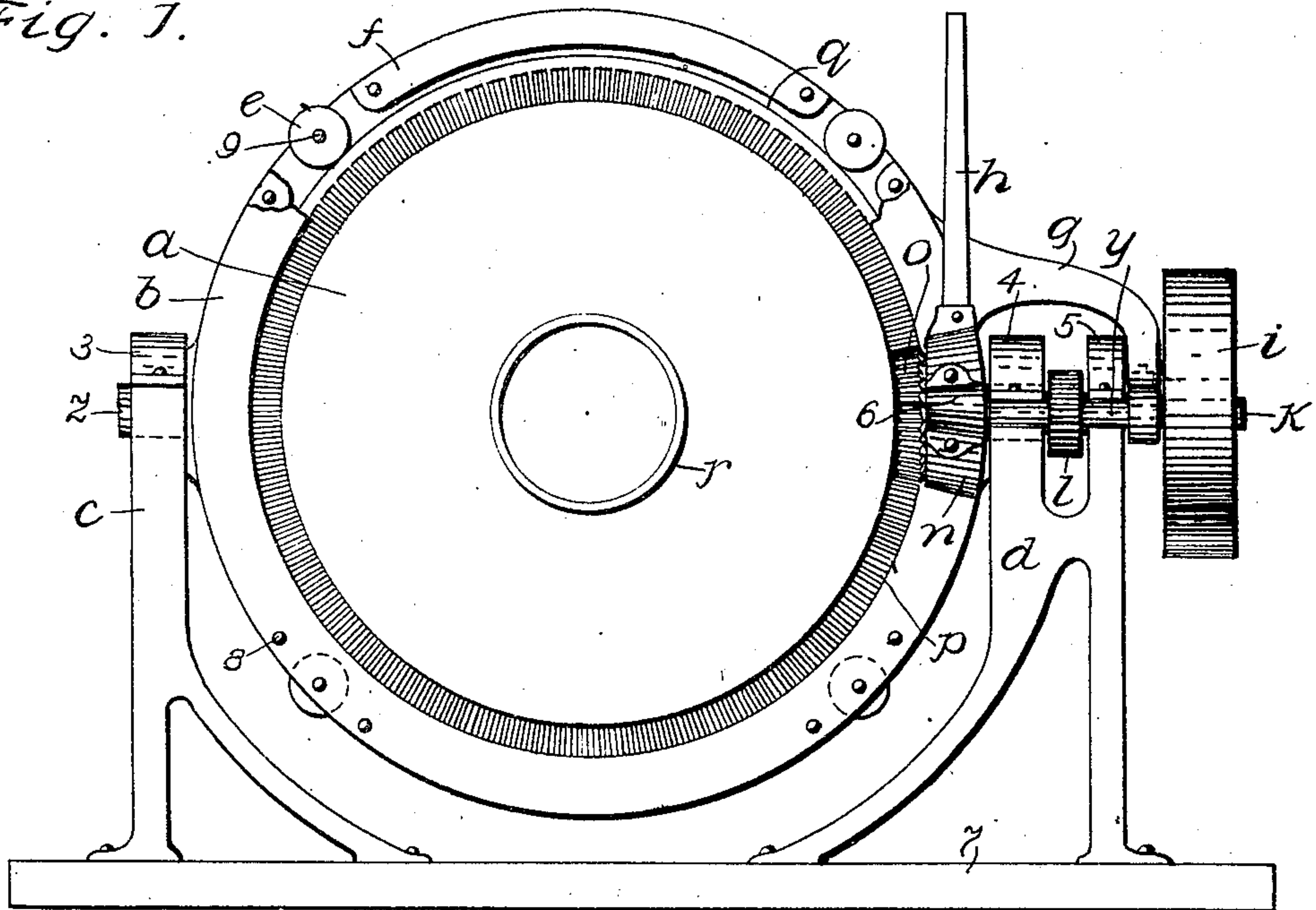


Fig. 2.

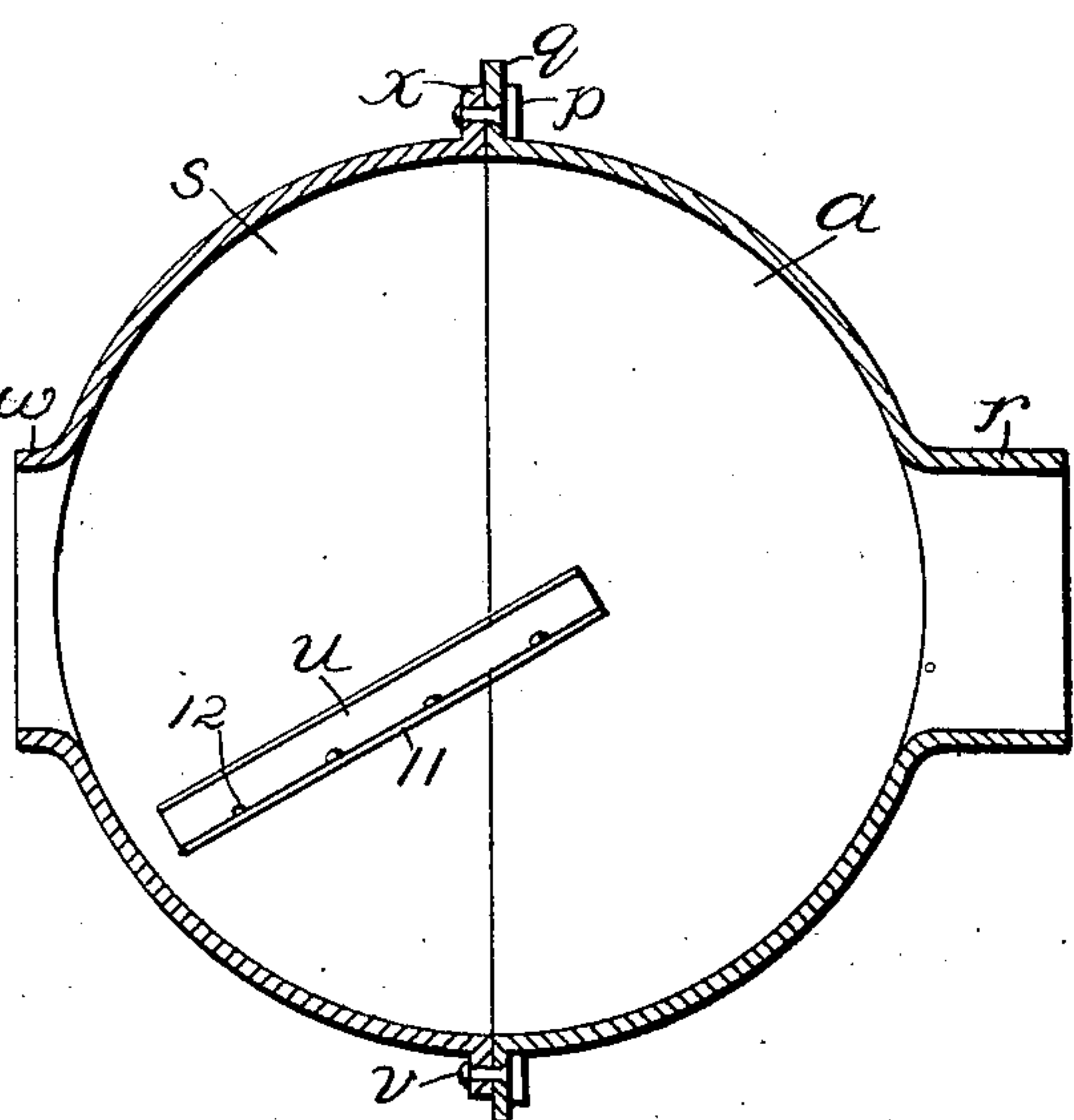


Fig. 3.

WITNESSES:

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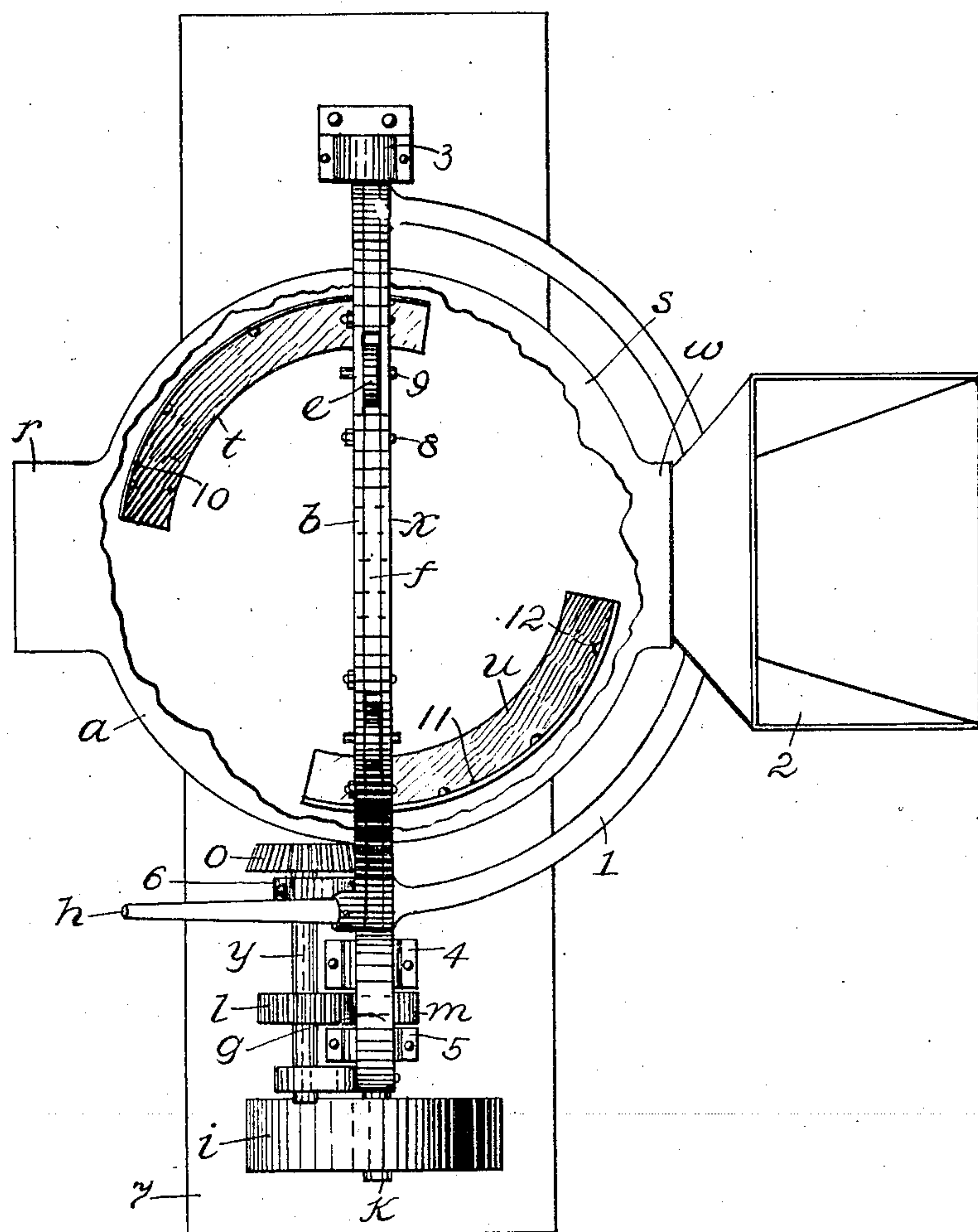
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3 SHEETS—SHEET 2.

Fig. 4.



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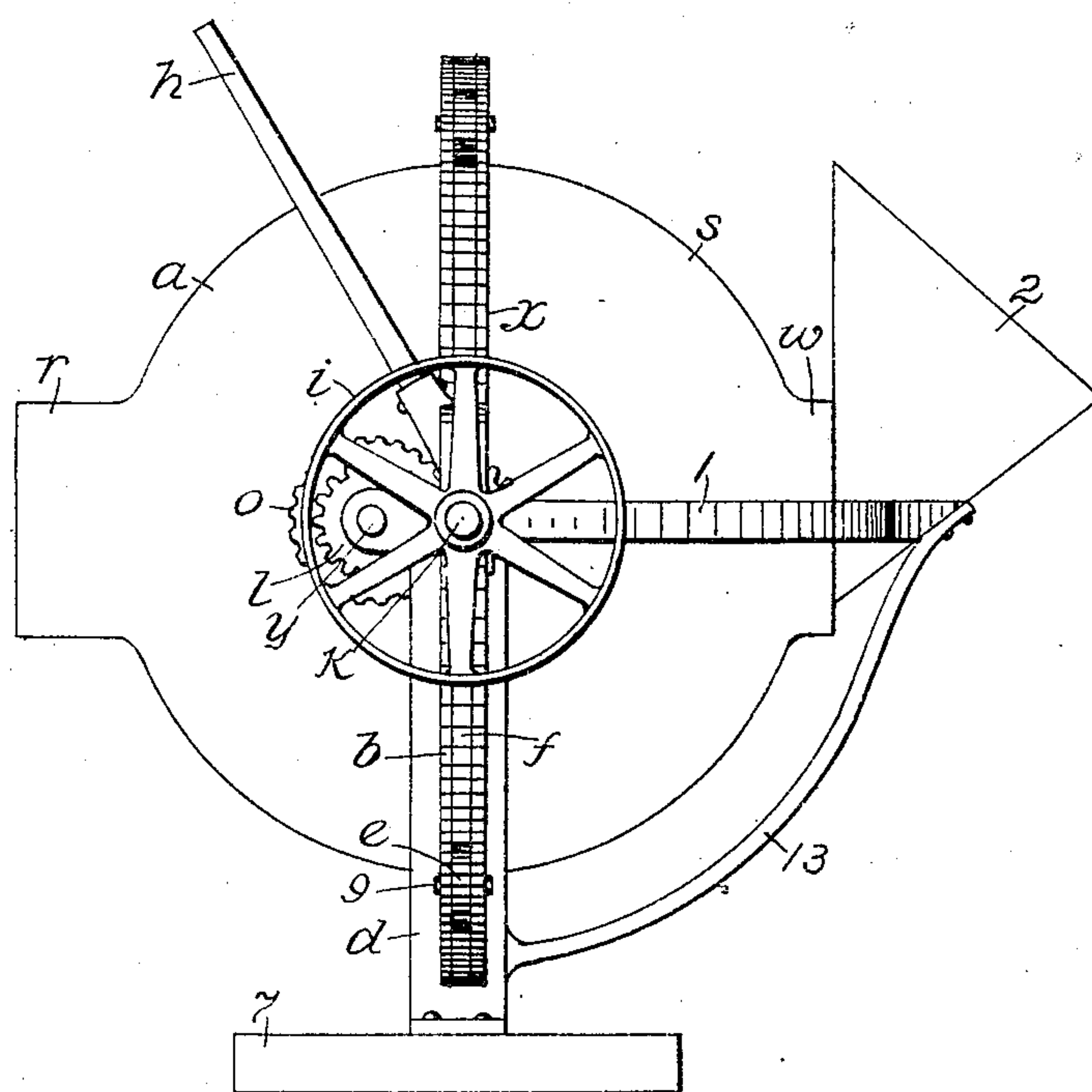
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3 SHEETS—SHEET 3.

Fig. 5.



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JOHN H. STEWART, OF WATERLOO, IOWA.

CONCRETE-MIXER.

No. 886,434.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed January 25, 1907. Serial No. 353,940.

To all whom it may concern:

Be it known that I, JOHN H. STEWART, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a specification.

My invention relates to improvements in concrete-mixers, and the objects of my improvements are, first, to provide an improved globular form of mixing drum, second, to supply an external anti-friction ring-bearing for such drum, and third to arrange the most compact, strong and convenient mechanism and supports for rotating such drum and properly upholding it and its bearing-ring. These objects I have accomplished by the mechanism which is hereinafter described and claimed, and which is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved concrete-mixer, Fig. 2, is a medial vertical section of the mixing-drum displaying its interior arrangement on one side of a vertical plane through its axis. Fig. 3 is a similar view on the opposite side, Fig. 4 is a plan view of the complete machine, part of the mixing-drum being shown as broken away to better disclose the oppositely disposed mixing-blades secured to its inner periphery, and Fig. 5 is a side elevation of said machine.

Similar characters of reference refer to similar parts throughout the several views.

My improved mixing-drum is in the shape of a hollow sphere, composed of two hemispheres *a* and *s*, preferably made of cast iron for the sake of greater strength and cheapness. The front section *a* has a raised ring or flange *q* provided on its front face with gear teeth *p*, and with countersunk holes for the reception of the rivets *v*. The rear section *s* also has a raised flange *x* with holes registering with the holes in the flange *q*, said flanges being by said rivets *v* thus secured together. The front section has a delivery spout *r*, while the rear section *s* has a receiving opening *w*. The flange *q* projects with smooth faces a slight distance beyond the teeth *p* radially, for a purpose to be presently described. Within said mixing-drum and placed directly opposite from each other so that their blades are directed toward the center, are two mixing-blades *t* and *u*, having flanges 10 and 11 respectively which are riveted to the inner periphery of said drum by

means of the rivets 12. The rear end of the blade *t* is uppermost, while the forward end of the blade *u* is uppermost, this arrangement resulting in the planes of said blades crossing each other at an angle as desired, usually between 30 and 45 degrees.

I have devised a novel form of supporting ring for said mixing-drum, said ring being formed of two parallel flat rings *b* and *x*, which are spaced apart by means of spacing plates *f* of somewhat narrower width. The said rings are secured together by means of bolts 8 passing through both of the rings as well as the said spacing-plates. The ends of said spacing-plates *f* are separated a sufficient distance apart to admit of anti-friction wheels *e* being placed therebetween, said wheels being pivoted on short shafts 9 set across and into the rings *b* and *x* so that the bearing edges of the wheels are a short distance inside the inside edges of said rings. The smooth edges of the flange *q* enters the inner space between the rings *b* and *x*, so as to contact with the edges of the anti-friction wheels *e*. The mixing drum is thus supported by said rings, and free to rotate easily upon the anti-friction wheels *e*. Only four wheels *e* are shown, but as many or few may be used as desired. A trunnion *z* extends outwardly from each side of the bearing-ring above described and into a bearing, 3 and 4, on each of the supporting frames *c* and *d*. An arm *g* projects outward and downward from the right hand side of the bearing-ring, and has at its lower end an extension at right angles furnished with a bearing opening for the outer end of the shaft *y*. A projection 6 extends forward from the same side of said bearing ring, and has a bearing for the front end of said shaft *y*. The inner end of the shaft *y* is provided with a bevel-gear-wheel *o*, adapted to intermesh with the teeth *p* on the ring *q*. A parallel shaft to *y* is the shaft *k*, which is set in bearings 4 and 5 on the support *d*. This shaft *k* is driven by means of a belt-wheel *i* affixed thereto and has a gear-wheel *m* intermeshing with a gear-wheel *l* on the shaft *y*. A hand-lever *h* is secured to one side of the ring *b*, and is used to oscillate the supporting ring and thereby tilt the drum so as to either raise or lower the spout *r* thereof. A hopper 2 has its lower delivery end inserted into the receiving opening *w* of said mixing-drum, said hopper being supported by means of a bracket 1 extending horizontally backward from the ring *x*, said bracket

having a brace 13 affixed at its lower end to the same ring *x*.

When the belt-wheel *i* is set in rotation, the mixing-drum is rotated thereby through the medium of the gear-wheels *m*, *l* and *o* and the geared ring *q*. The contents of said mixing-drum, when sufficiently mixed, may be ejected through the spout *r*, by tilting said drum with the lever *h*.

10 Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is

1. A concrete mixer, comprising a standard, a rotatable mixing drum provided with inlet and outlet ports, a bearing ring on the outside of said drum, an equatorial bearing member surrounding said ring and comprising a pair of connected annuli mounted in parallel and having a pivotal relation to said

standard, segmental spacing-plates secured between said rings, anti-friction rollers mounted between the ends of adjacent spacing-plates with which said first named ring is adapted to contact, and means for rotating said drum.

2. A concrete mixer comprising two hemispherical drum portions provided with joining flanges, one of said flanges being extended to form a peripheral bearing, a tiltable grooved supporting ring surrounding said bearing, and means for rotating said drum.

Signed at Waterloo, Iowa, this 4th day of Jan. 1907.

JOHN H. STEWART.

Witnesses:

O. D. YOUNG,
G. C. KENNEDY.