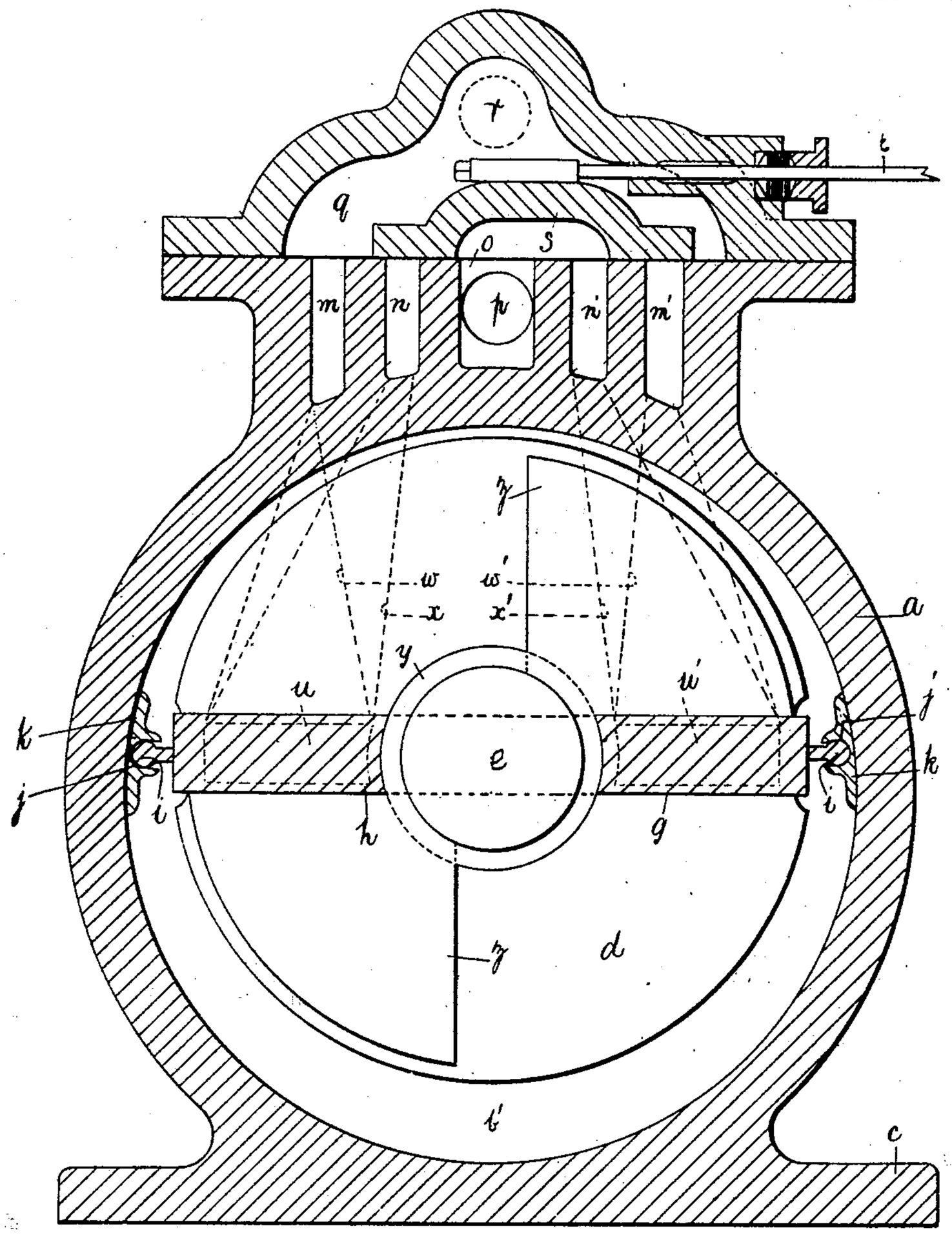
No. 745,755. PATENTED DEC. 1, 1903.

H. T. ALLEN.

ROTARY ENGINE.

APPLICATION FILED MAR. 21, 1903.

NO MODEL. 3 SHEETS—SHEET 1.



-Fig 1-

Witnesses
William Crosley
George Hunt

Inventor
Herbert Thomas Allen
per George Hughes
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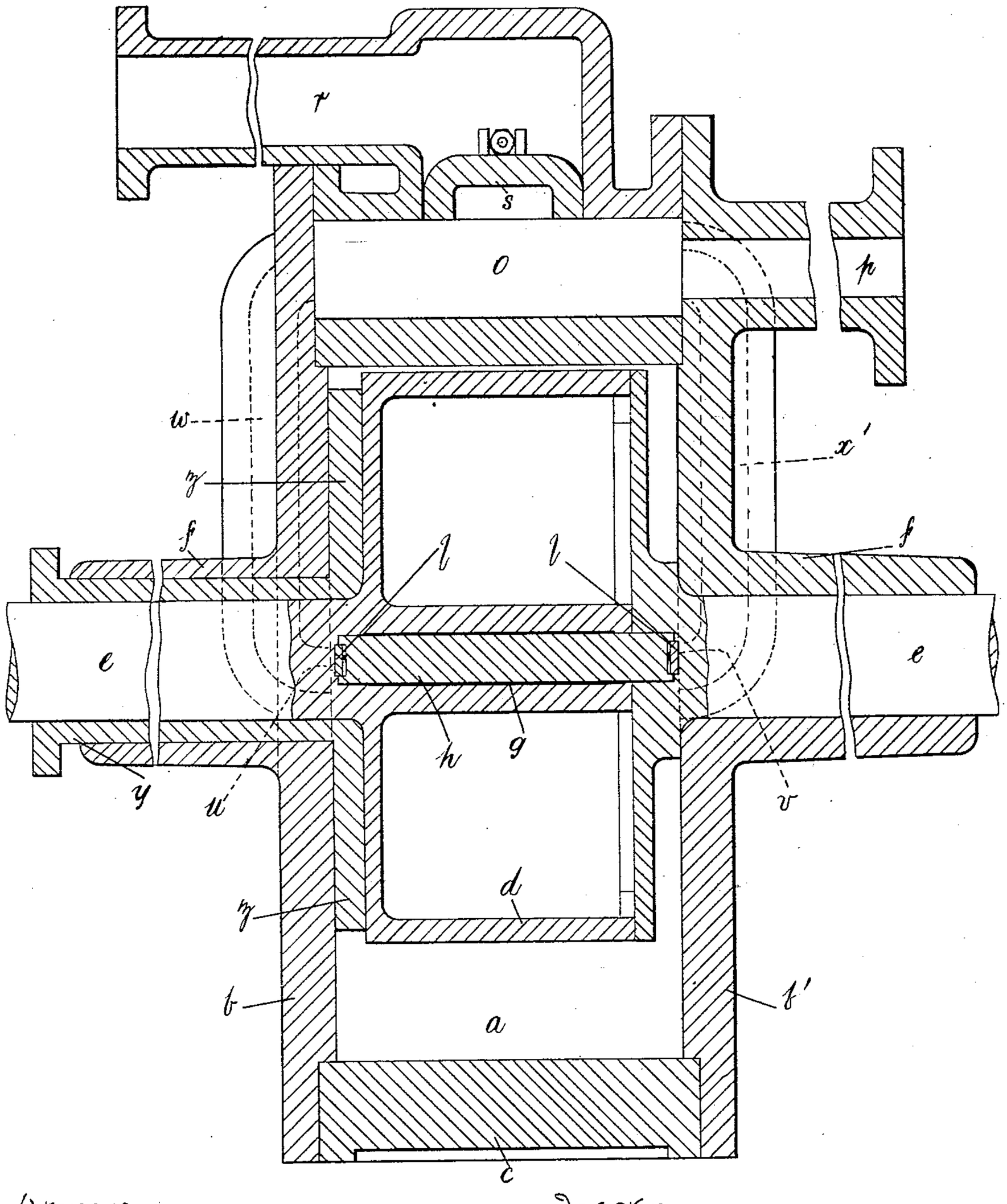
NO MODEL. 3 SHEETS—SHEET 2.

Fig 2.



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NO MODEL. 3 SHEETS—SHEET 3.

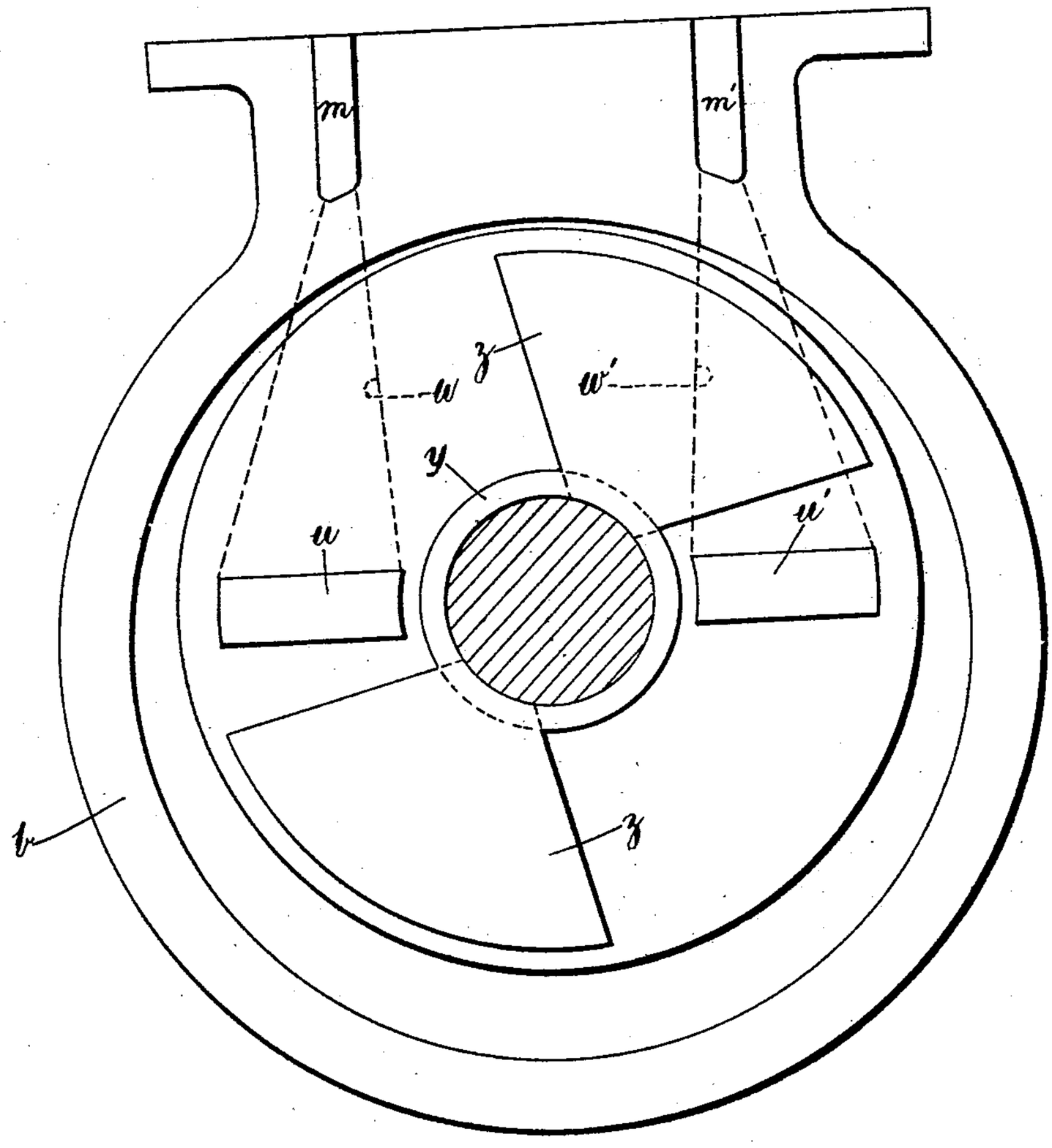

Fig 3

Witnesses

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No. 745,755. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

HERBERT T. ALLEN, OF SOUTH WOODFORD, ENGLAND.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 745,755, dated December 1, 1903.

Application filed March 21, 1903. Serial No. 149,000. (No model.)

To all whom it may concern:

Be it known that I, HERBERT THOMAS ALLEN, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at 4 The Shrubbery, George Lane, South Woodford, in the county of Essex, England, have invented new and useful Improvements in Rotary Engines, of which the following is a specification.

This invention relates to improvements in rotary engines in which a cylindrical casing contains an eccentrically-placed drum through which slides diametrically a plate-piston, and an engine constructed in accordance herewith is shown in the accompanying drawings, wherein—

Figure 1 is a cross-section, and Fig. 2 a part sectional side view, Fig. 3 being an end view of one of the covers of the engine.

This engine consists of a cylindrical casing *a*, having end covers *b b'* and a suitable base *c*, by which it can be fastened in position for use. Within the casing *a* is a drum *d*, whose axis is eccentrically above that of the casing *a*. The diameter and length of the drum *d* are such that no part of it will touch the inside of the casing *a* or its end covers *b b'*. The ends of the drum *d* are continued as trunnions *e*, supported in bearings *f*, which may conveniently be continuations of the end covers *b b'*.

In the drum *d* is a slot *g*, passing diametrically through it, and in this slot is free to slide the plate-piston *h*, having beaded edges *i*, the beads working in channels *j* at the backs of shoes *k*, which may be kept in contact with the inside of casing *a* by springs. The piston *h* has spring-feathers *l* at each end to keep it steam-tight against the end covers *b b'*.

Immediately above the casing *a* are two steam-inlet ports *m m'*, two outlet-ports *n n'*, and an exhaust-port *o*, communicating with the exhaust-pipe *p*. Above the said ports is a steam-chest *q*, in which opens the steam-pipe *r*. Within the steam-chest *q* is the slide-valve *s* for use in reversing the engine and operated by a rod *t* and suitable gear.

In the cover *b* and right and left of the center of rotation are the inlets *u u'*, by which steam enters the casing *a*, and in the other cover, *b'*, are similarly-situated outlets *v v'*. Steamways *w w'* are provided in the cover *b* for the passage of steam from the ports *m* or *m'* to the inlets *u* or *u'*, as the case may be, and similarly-situated steamways *x x'* are provided in the other cover, *b'*, for the passage of the steam from the outlets *v* or *v'* to the ports *n* or *n'*, as the case may be. When the slide-valve *s* is put over to one side, the passage of the steam is from *m'* through *w'* to *u'*, and the engine runs clockwise. When the slide-valve *s* is put over the other side, the passage of the steam is from *m* through *w* to *u*, and the engine runs the opposite way. Thus when *m'* and *n* are open *m* and *n'* are closed.

For cutting off the steam at the required part of the "stroke" I provide at the steam-entrance end of the casing *a* a sleeve *y* between the trunnion *e* and the bearing *f*, and to this sleeve are attached the sector-plates *z*, working between the cover of the casing *a* and the drum *d*. When the engine is reversed by operating the slide-valve *s*, the sectors *z* are moved over from one side to the other by hand or other means.

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

1. A rotary engine consisting of a cylindrical casing: a drum within the said casing having its axis eccentrically above the axis of the casing and its end covers continued as trunnions: bearings at each end of the cylindrical casing to support the said trunnions: a plate-piston passing diametrically through the said drum and provided with beaded edges entering channels at the backs of shoes adapted to move in contact with the interior of the casing: means for keeping the shoes in steam-tight contact with the inside of the casing: means for keeping the ends of the plate-piston steam-tight against the covers of the outer casing: two steam-inlet ports, two steam-outlet ports and one exhaust-port above the said cylindrical casing: a steam-chest above the said ports: a slide-valve over the said ports: means for operating the said valve to reverse the engine: steamways in one of the covers of the cylindrical casing for conveying steam from the inlet-ports, to the inlets in the casing: exhaust-steamways in

the other cover of the cylindrical casing for conveying steam from the outlets in the casing to the outlet-ports: cut-off sectors between the ends of the drum and the casing at which the steam enters the casing: a sleeve connected to the sectors and situated between one of the trunnions and the bearing carrying it, substantially as hereinbefore described.

2. A modification substantially as hereinbefore described whereby the engine claimed in the above claim (1) is made usable as a blower.

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

HERBERT T. ALLEN.

Witnesses:

ARTHUR SOLEY,

PHILIP F. TANNER,

HENRY R. KING.