

G. A. STEBBINS.
SULFUR BURNER.

APPLICATION FILED MAY 19, 1908.

Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.

906,574.

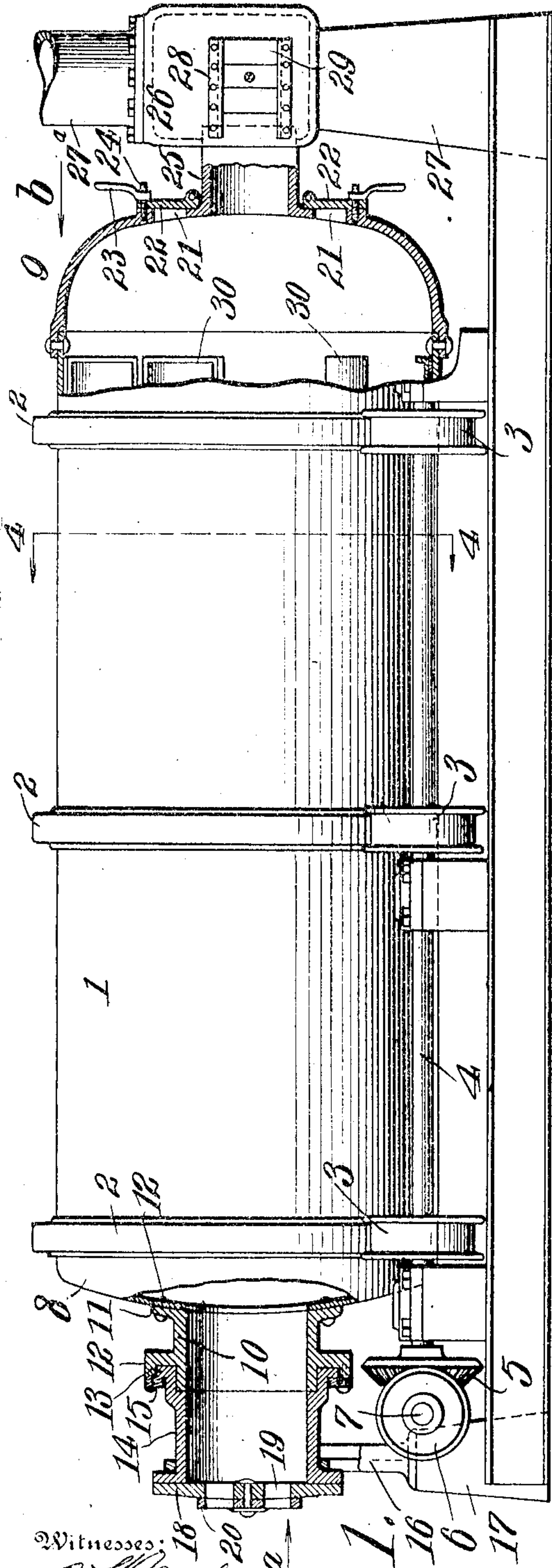


Fig. 1.

Witnesses:
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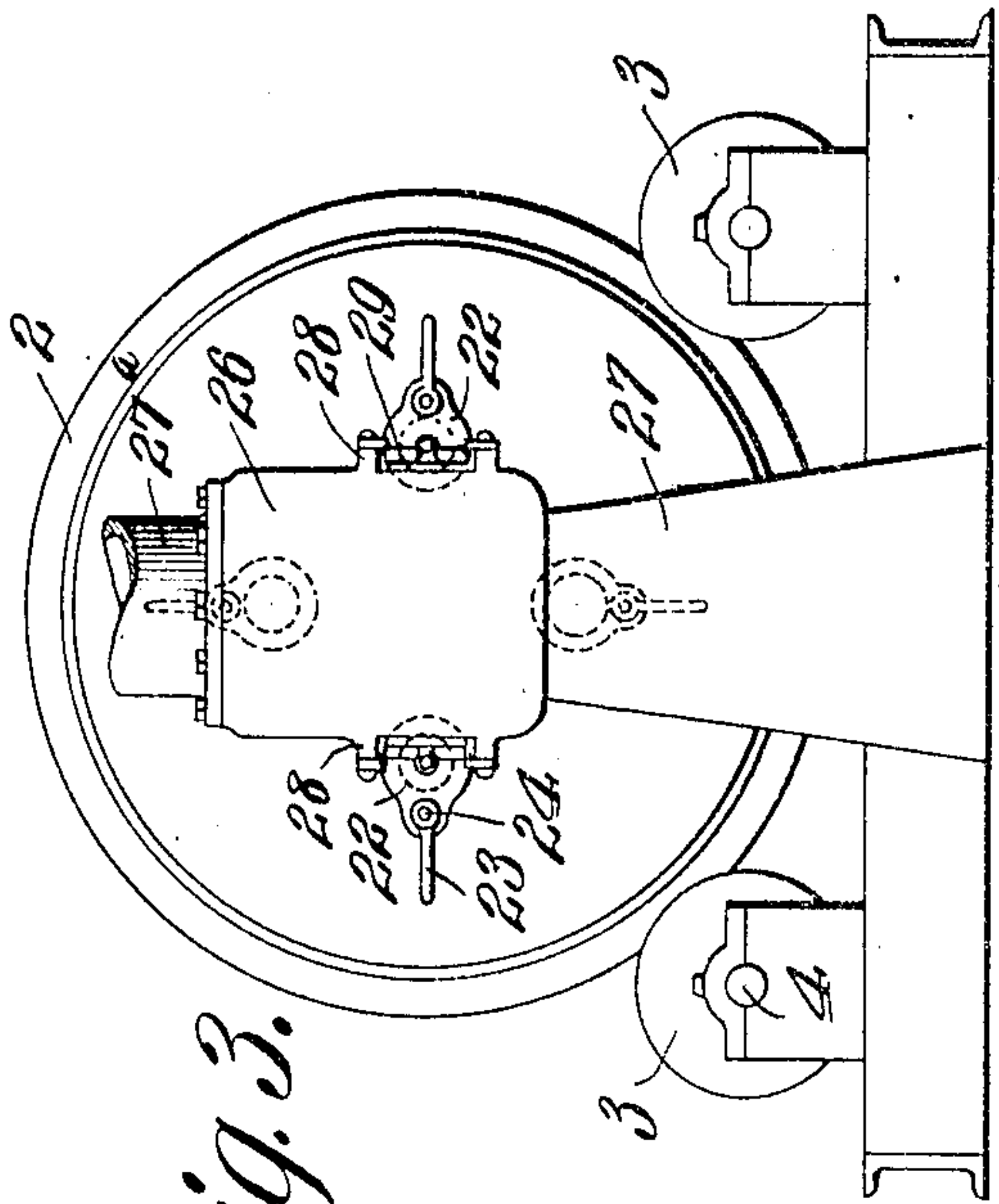


Fig. 3.

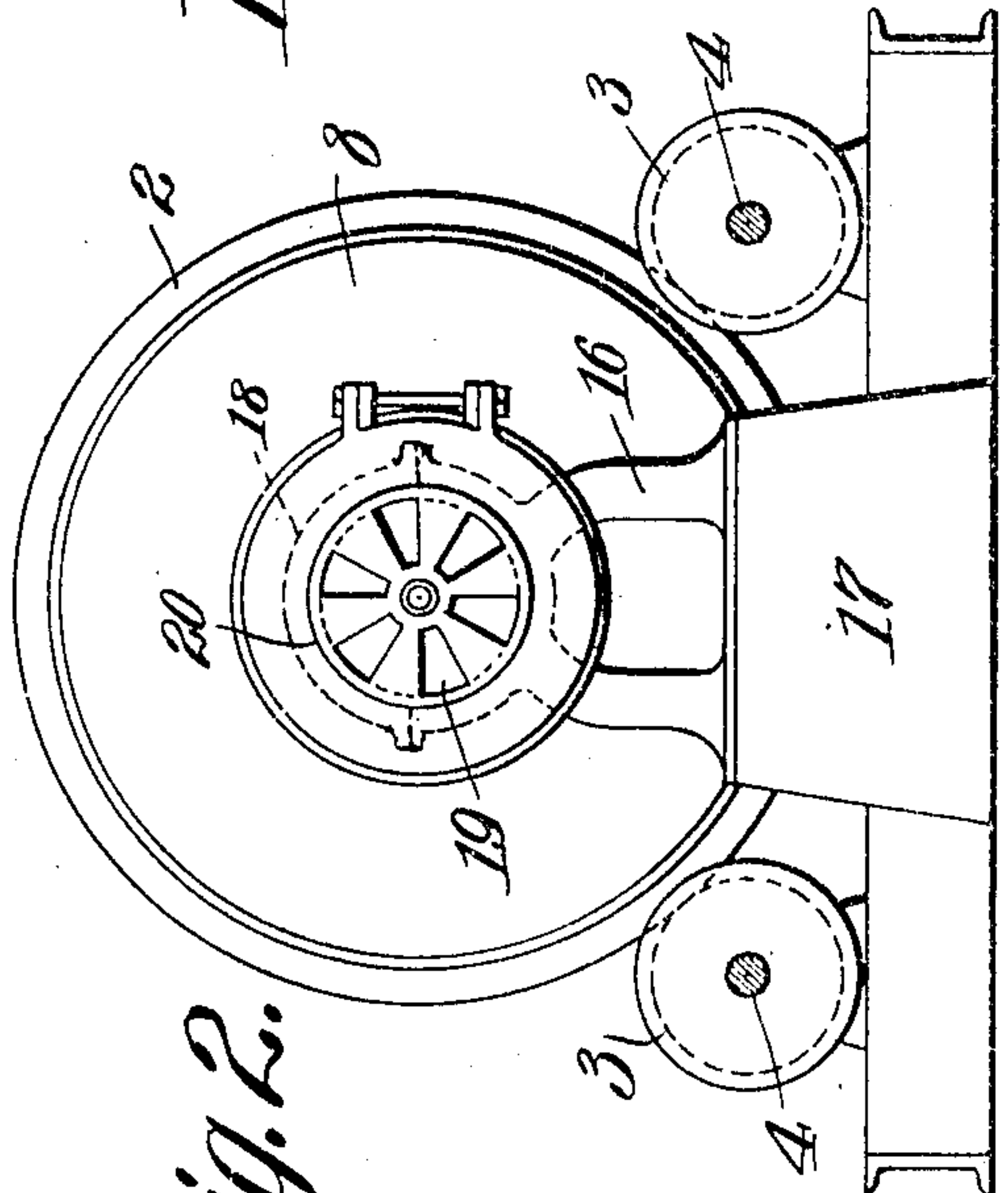


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 5.

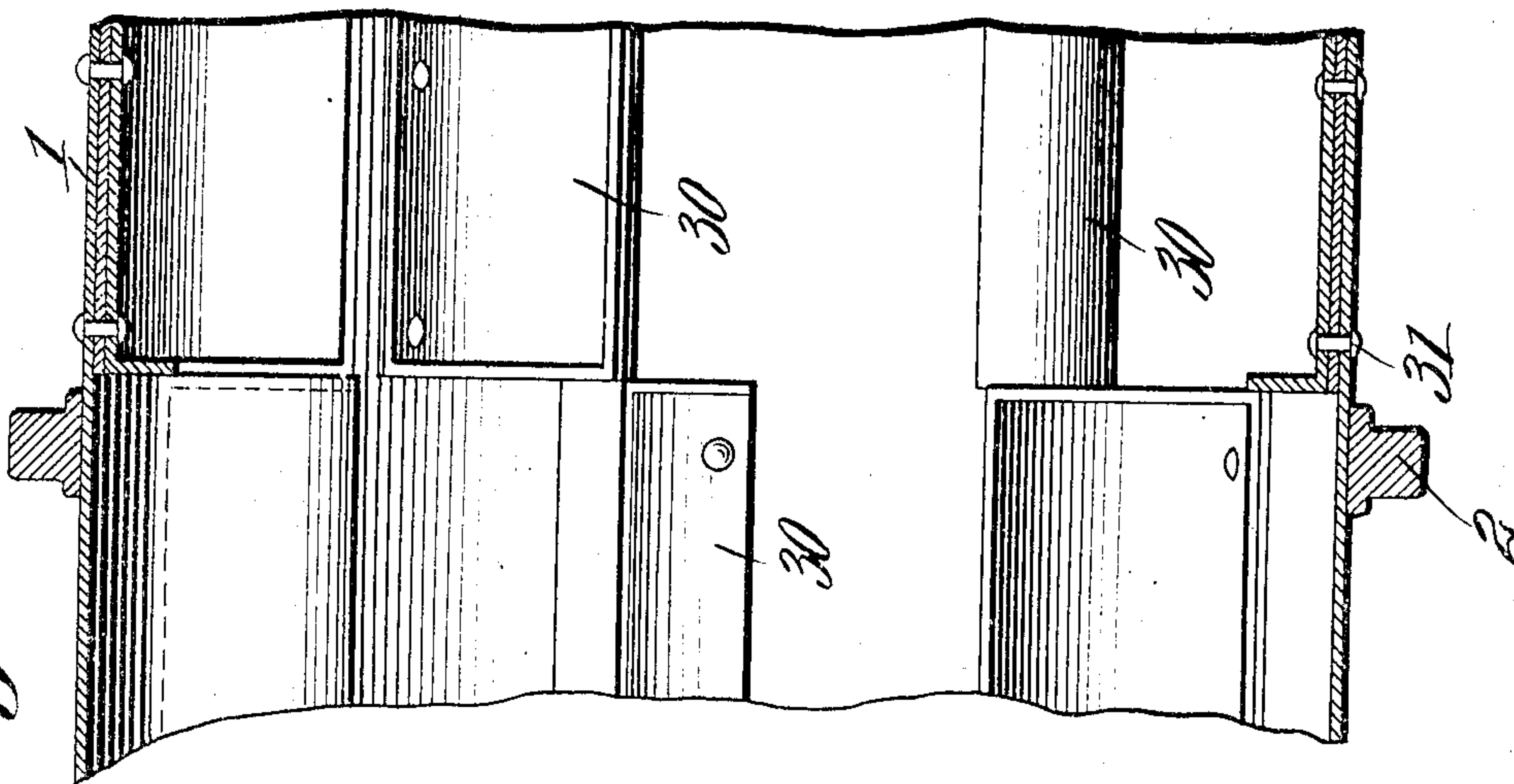
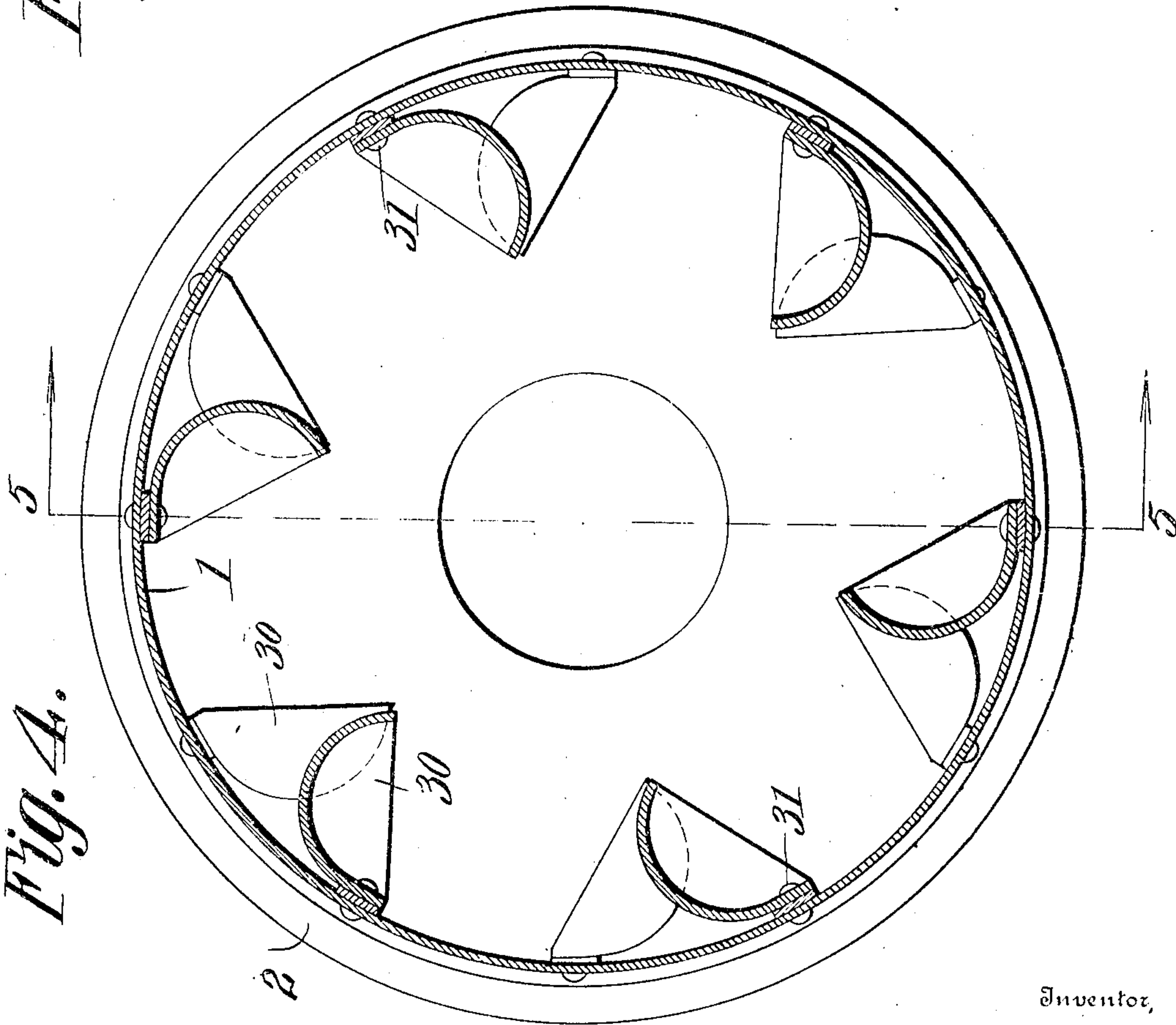


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE ALFRED STEBBINS, OF WATERTOWN, NEW YORK.

SULFUR-BURNER.

No. 906,574.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed May 19, 1908. Serial No. 433,735.

To all whom it may concern:

Be it known that I, GEORGE ALFRED STEBBINS, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented a new and useful Sulfur-Burner, of which the following is a specification.

This invention relates to sulfur burners.

The object of the invention is to provide an apparatus of this character which will expeditiously and economically burn or oxidize sulfur for the production of sulfur dioxide and in which a substantially uniform quantity of gas may be produced when the apparatus is in full operation, even during the periods when the apparatus is being charged.

With the above and other objects in view as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a sulfur burner as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in side elevation, partly in section, of a sulfur burner constructed in accordance with the present invention. Fig. 2 is an end elevation looking in the direction of the arrow *a* in Fig. 1. Fig. 3 is a similar view looking in the direction of the arrow *b*, in Fig. 1. Fig. 4 is a transverse sectional view, on an enlarged scale, taken on the line 4—4, Fig. 1. Fig. 5 is a longitudinal sectional view, on an enlarged scale, of a portion of the cylinder, taken on line 5—5, Fig. 4.

The cylinder 1 may be of the usual or any preferred construction, and has secured to its exterior three tracks 2, one being disposed intermediate the length of the cylinder and the other two adjacent to the respective ends. These tracks are designed to engage grooved rollers 3, of which there are six, and are mounted upon shafts 4. Each of the shafts carries at its forward end a beveled gear 5, and these gears engage similar gears 6, one only being shown in Fig. 1, that are carried by a counter shaft 7 driven from a suitable source of power, not necessary to be shown.

The ends of the cylinder are closed by outwardly-dished heads 8 and 9, the first head being at the front or feed end of the machine and the last-named at the rear or discharge end thereof. The head 8 carries a cylindrical throat 10 which is provided with a flange

11 through which pass bolts 12 secured to the head. The forward end of the throat 10 is provided with a rabbeted flange 12 that is engaged by a flange 13 carried by a throat piece or mouth 14 and is held assembled therewith by a ring 15 that is bolted to the flange 12. This arrangement will permit the cylinder to rotate freely without imparting any strain whatever to the mouth 14. The mouth is supported by a pedestal 16 that is carried by a concrete base 17. The outer end of the mouth is closed by a door 18 provided with draft openings 19, passages through the same being controlled by a rotary damper 20, as clearly shown in Fig. 2. The head 9 is provided with a series of draft openings 21, in this instance four, as clearly shown in Fig. 3, and these openings are controlled by blank slides 22 which are clamped at the appropriate adjustment by levers 23 that are carried by threaded studs 24 arranged in the head 9. The head 9 is provided with a tubular extension 25 that communicates with a chamber 26 supported upon a concrete pedestal 27. Connecting with the upper end of the chamber 26 is a pipe 27^a that constitutes the gas outlet and leads the generated gas to a point where it is further used in the process.

On two sides of the chamber 26 are arranged guides 28 between which are mounted to slide a series of dampers 29 which are provided for the purpose of supplying additional air to the gas if found necessary.

One of the features of the invention resides in the novel arrangement of buckets by which the hot molten sulfur is picked up and discharged in streams across the air zone. As shown in Fig. 4, these buckets are semi-circular in cross section and are held assembled with the cylinder by rivets or bolts 31. The buckets are arranged in two series that are reversely disposed, that is to say, the series of buckets at the front end of the cylinder pick up the sulfur on their concave sides, while those at the rear pick up sulfur on their convex sides. By this arrangement the greatest bulk of molten sulfur will be projected through the air zone at the point of greatest supply, while the lesser bulk will be passed through the zone at the point of least supply. By this means the generation of the gas will be materially augmented, its quantity rendered practically uniform when the apparatus is in full operation, even during the period when the apparatus is being

charged and thorough oxidation will be assured.

The apparatus as a whole is simple in construction but will be found thoroughly efficient for the purposes designed and will in operation produce sulfur dioxide in a rapid and even manner.

What is claimed is:—

1. A sulfur burner embodying a rotatable cylinder including oppositely-disposed buckets.

2. A sulfur burner embodying a rotatable cylinder including transversely curved, oppositely disposed buckets.

3. A sulfur burner embodying a rotatable cylinder including two series of semi-circular buckets, those at the front of the cylinder being designed to pick up the sulfur from their concave sides while those at the rear of the cylinder pick it up from their convex sides.

4. A sulfur burner comprising a rotatable cylinder including oppositely disposed buckets, and provided at its front end with a stationary throat, and a door combined with the throat and embodying a regulable air inlet.

5. A sulfur burner comprising a rotatable

cylinder including oppositely disposed buckets, and provided at its front and rear ends with regulable air inlets.

6. A sulfur burner comprising a rotatable cylinder including oppositely disposed buckets, and provided at its front and rear ends with air controlling mechanism, a chamber into which the rear end of the cylinder discharges, and a regulable draft inlet combined with the chamber.

7. A sulfur burner comprising a rotatable cylinder, oppositely disposed buckets arranged upon the interior thereof, regulable air inlets at the front and rear ends of the cylinder, a chamber into which the rear end of the cylinder discharges, and a regulable draft inlet and a gas outlet combined with the chamber.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE ALFRED STEBBINS.

Witnesses:

A. F. RICHTER,
H. C. METZGER.