

No. 871,114.

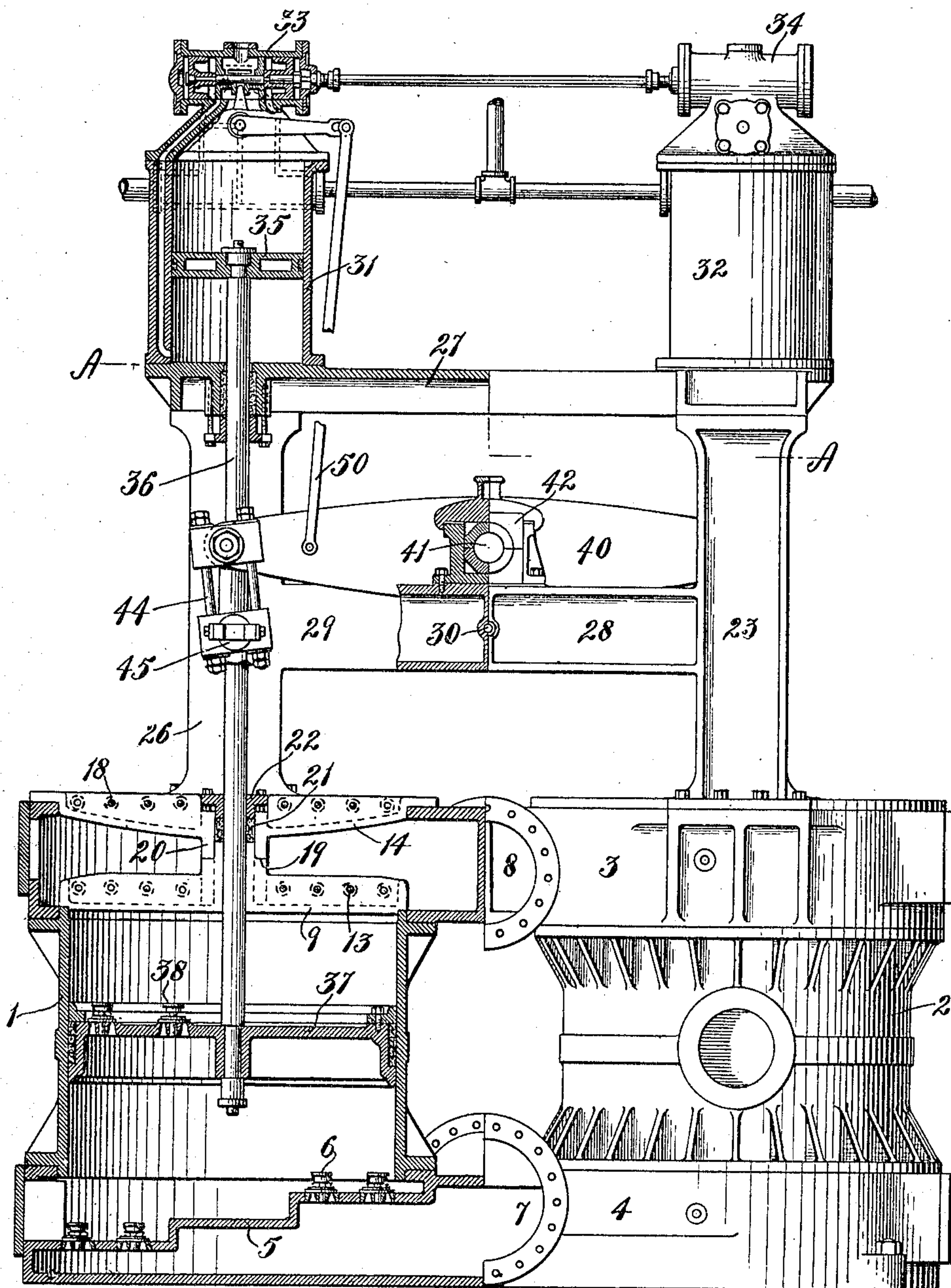
PATENTED NOV. 19, 1907.

W. A. DREWETT.
TWIN AIR PUMP.

APPLICATION FILED JAN. 25, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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3 SHEETS—SHEET 2.

Fig. 2.

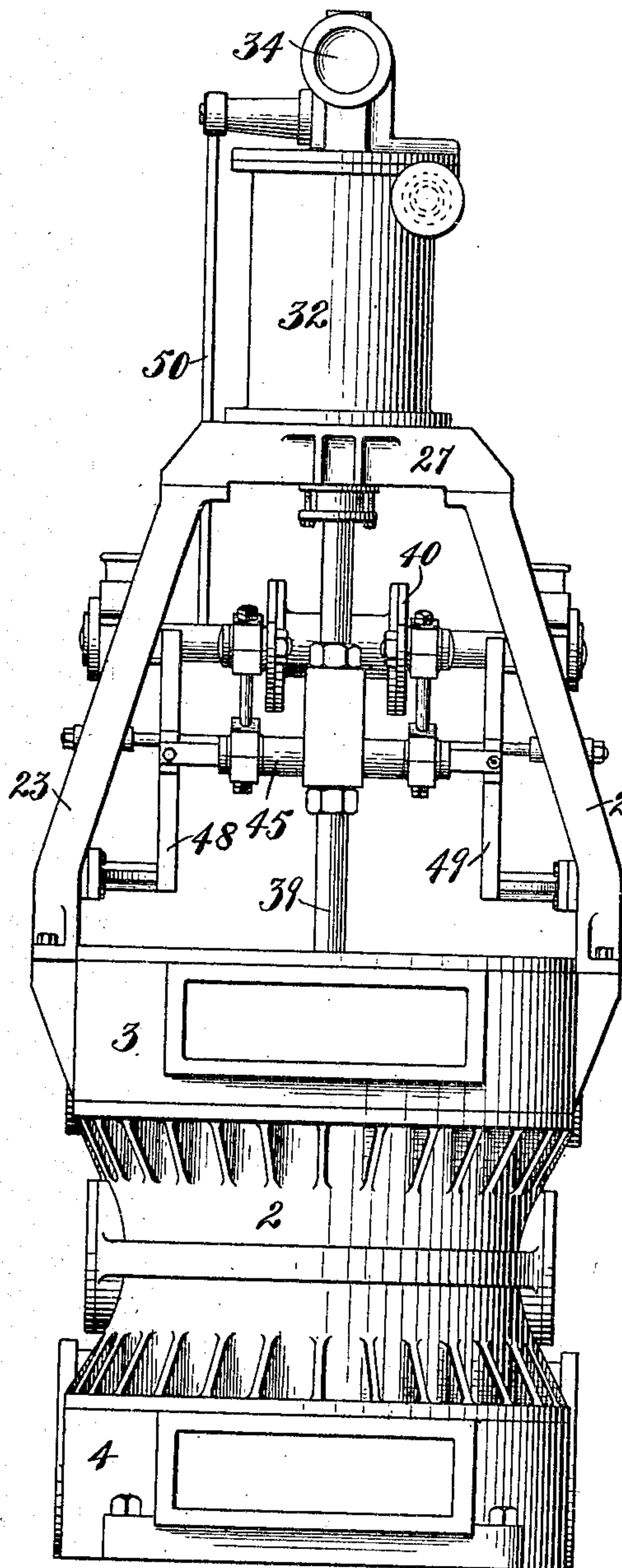
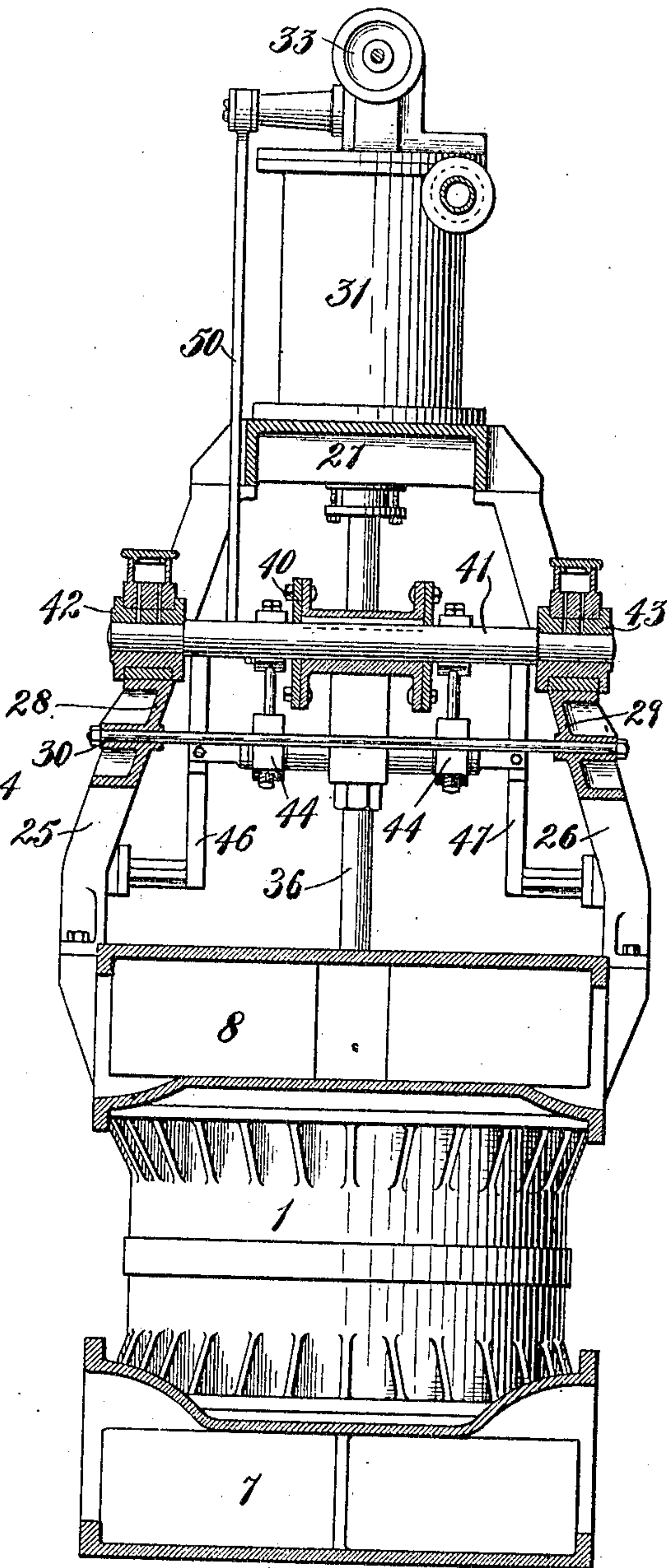


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

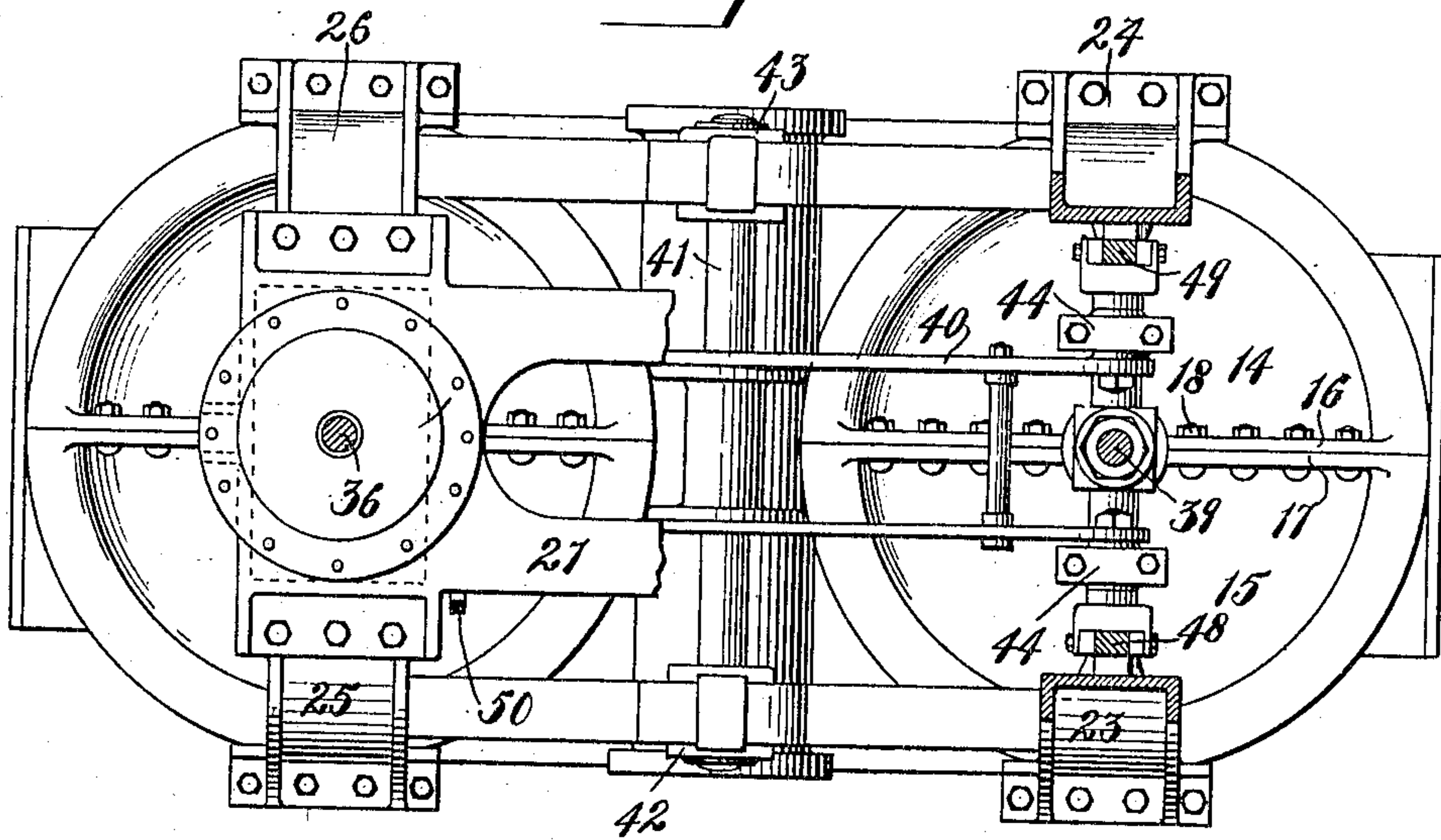
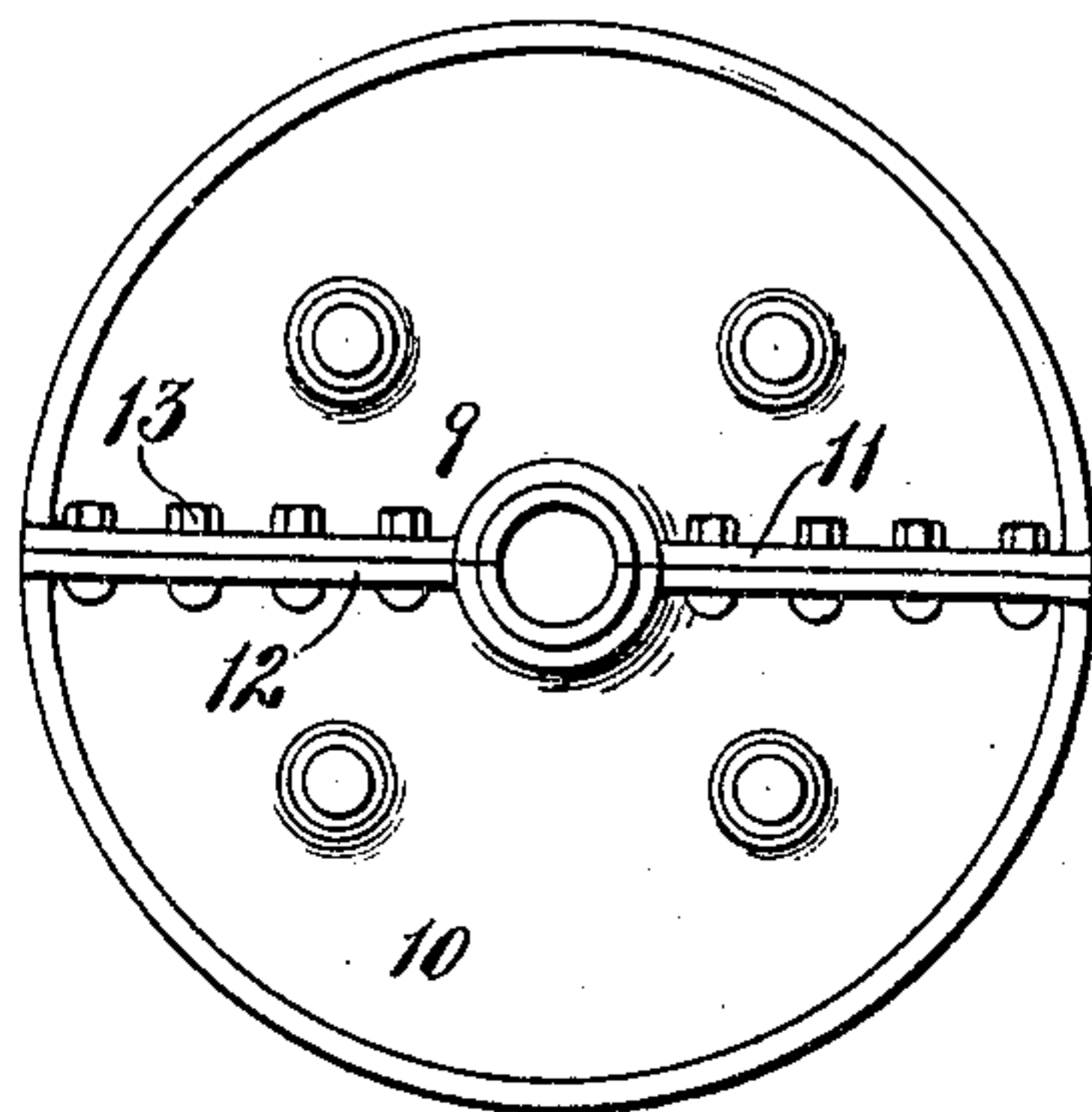


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TWIN AIR-PUMP.

No. 871,114.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed January 25, 1904. Serial No. 190,556.

To all whom it may concern:

Be it known that I, WILLIAM A. DREWETT, a citizen of the United States, and resident of the borough of Brooklyn, in the city and State of New York, have invented a new and useful Twin Air-Pump, of which the following is a specification.

My invention relates to twin air pumps, with the object in view of improving the structure of the steam cylinder supports and providing means for steadying the piston rods, simplifying the access to the interior of the air cylinders and for practically decreasing the distance between the air cylinders.

In the accompanying drawings, Figure 1 is a view of the pump in front elevation, one-half in section, Fig. 2 is an end view, Fig. 3 is a vertical central section from front to rear, Fig. 4 is a horizontal section in the plane of the line A—A of Fig. 1, and Fig. 5 is a top plan view in detail of the inner air cylinder head.

The air cylinders are denoted by 1 and 2. They are fitted at their upper and lower ends to the walls of circular openings in upper and lower hollow castings denoted by 3 and 4. The casting 4 forms the base of the pump and the casting 3 forms a support for the superstructure which carries the steam cylinders, one for each air cylinder, the walking beam for connecting the two piston rods and the guides for holding the piston rods in right lines during their reciprocatory movements. The base casting 4 is provided with step-shaped diaphragms, one at the base of each air cylinder, denoted by 5 (Fig. 1), carrying the air inlet valves 6 and an air inlet opening 7 is common to the two cylinders. The casting 3 at the tops of the air cylinders is provided with an air delivery opening 8 common to the two air cylinders and each air cylinder is provided at its upper end with a two-part or sectional head, the two parts being substantially half sections and denoted by 9 and 10. These half sections are provided with flanges 11, 12, projecting upwardly at their meeting edges, for the reception of bolts 13 for securing the sections together in assembled adjustment.

The head 9, 10, is provided with the proper number of air outlet valves for transmitting the air from the cylinder to the interior of the casting 3. The casting 3 is

further provided at its upper wall with heads, one for each cylinder and located above and arranged to coact with the inner heads hereinabove referred to. These upper or outer heads are like the inner heads, each made sectional, the two half-sections of one of the heads being denoted by 14, 15, (see Fig. 4) and are provided with upwardly or outwardly extending flanges 16, 17, at their meeting edges for receiving bolts 18 to hold the sections in assembled adjustment. The hub of the inner head 9, 10, is shouldered as shown at 19 (Fig. 1) for receiving the lower end of the hub 20 of the outer head, and the upper end of the hub of the inner head forms the lower gland for holding the packing 21 between it and the upper gland 22.

The frame-work for supporting the steam cylinders and operating parts above the air cylinders, consists of four legs arranged in pairs, the members 23, 24, of one pair extending upwardly from the casting 3 at the front and rear of the casting in the central transverse plane of the cylinder 1 and gradually converging, and the members 25, 26, of the other pair extending in a corresponding manner upward in the central transverse plane of the cylinder 2. A cap plate 27 is secured firmly to the upper ends of the said legs and side girders 28, 29, bind the legs against a rocking motion in a longitudinal direction of the frame-work. A centrally located tie-rod 30, extends transversely through the girders 28, 29, to hold the latter against vibration. The spread of the members of each pair of legs 23, 24, and 25, 26, at their lower extremities is such that the outer heads 14, 15, may be readily manipulated without disturbing adjacent parts, while the sectional structure of the heads, both outer and inner, provides for their removal without disturbing the piston rod.

The steam cylinders are denoted by 31, 32, and are mounted on the cap plate 27 with their axes in alinement with the axes of the cylinders 1 and 2, respectively. Each steam cylinder has its valve chamber containing steam inlet and exhaust valves, the valves in the two chambers being connected to move together as is usual. The valve chambers are denoted by 33, 34. A piston 35 in the steam cylinder 31 is connected by a piston rod 36 with a piston 37 in the air cyl-

inder 1, the latter being provided with air transmission valves 38 as is usual. In like manner a piston in the steam cylinder 32 is connected with a valved piston in the air cylinder 2 by a piston rod 39.

The piston rods 36 and 39 are connected by a rocking beam 40, termed, for convenience, a walking beam, the latter being secured, midway of its length, to a rock-shaft 41 journaled in pillow blocks 42, 43, supported on girders 28, 29. The ends of the walking beam 40 are connected to the piston rods by swinging links 44, arranged in pairs, one pair at each end of the beam, and the free ends of the links 44, in the present instance the lower ends, are attached to the piston rods 36 and 39, one pair to each, and are caused to travel in a right line by means of a sliding cross head 45, one for each piston rod, which cross head has a sliding engagement with fixed upright ways 46, 47, secured, respectively, to the inner sides of the legs 23, 24. In like manner, the ways 48, 49, control the cross head attached to the piston rod 39. This means for connecting the piston rods and holding them against lateral thrust, makes it feasible to locate the air cylinders in close proximity and so shorten the walking beam. The valve operating rod 50, is connected with and operated by the walking beam 40 as usual.

The converging arrangement of the legs or posts of the superstructure act as lateral braces while the location of the girders above the foot of the superstructure leaves the top of the upper casting 3 free and accessible and, at the same time, the frame is light and attractive.

What I claim is:—

1. The combination with the air and steam cylinders and their piston rods, of inner heads for the air cylinder provided with discharge valves and outer sectional heads for the air cylinders arranged to coact with the inner heads to form an air-tight closure whereby access may be gained to the pistons within the cylinders without the removal of the piston rods.

2. The combination with the air and steam cylinders and their piston rods, of inner sectional heads for the air cylinders provided with air discharge valves and outer sectional heads arranged to coact with the said inner sectional heads to form an air-tight closure for the cylinders whereby access may be gained to the pistons within the cylinders without removing or uncoupling the piston rods.

3. The combination with the air and steam cylinders and their piston rods, of inner sectional heads for the air cylinders and outer sectional heads for said cylinders, the said outer sectional heads having their hubs interlocked with the hubs of the inner sectional heads to form an air-tight closure whereby access may be obtained to the pistons within the cylinders without removing or uncoupling the piston rods.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this 5th day of January 1904.

WM. A. DREWETT.

Witnesses:

FREDK. HAYNES,
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