

No. 688,033.

Patented Dec. 3, 1901.

J. SLOAN.
COMPRESSOR PUMP.

(Application filed Jan. 18, 1901.)

(No Model.)

Fig. 2

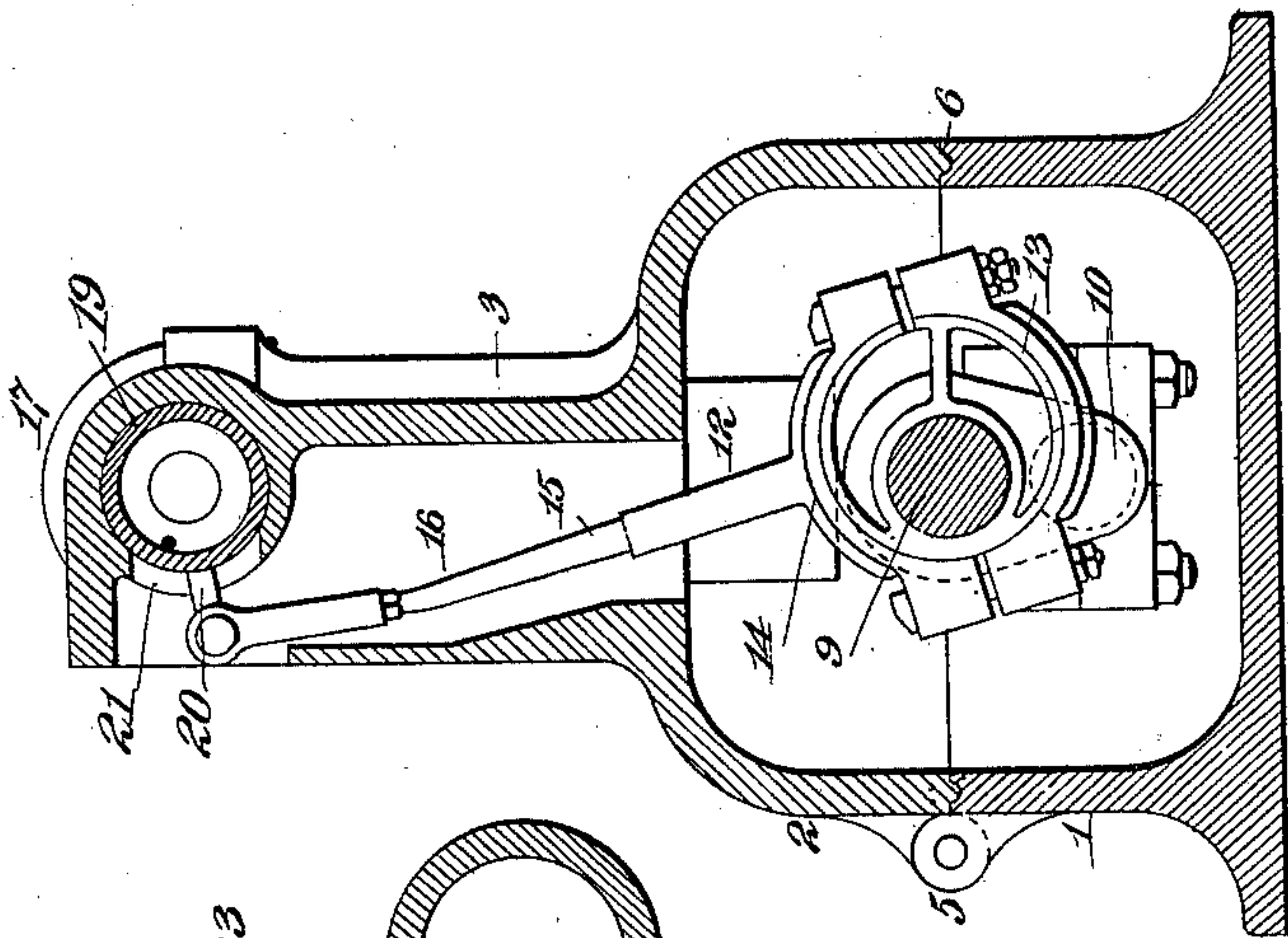


Fig. 3

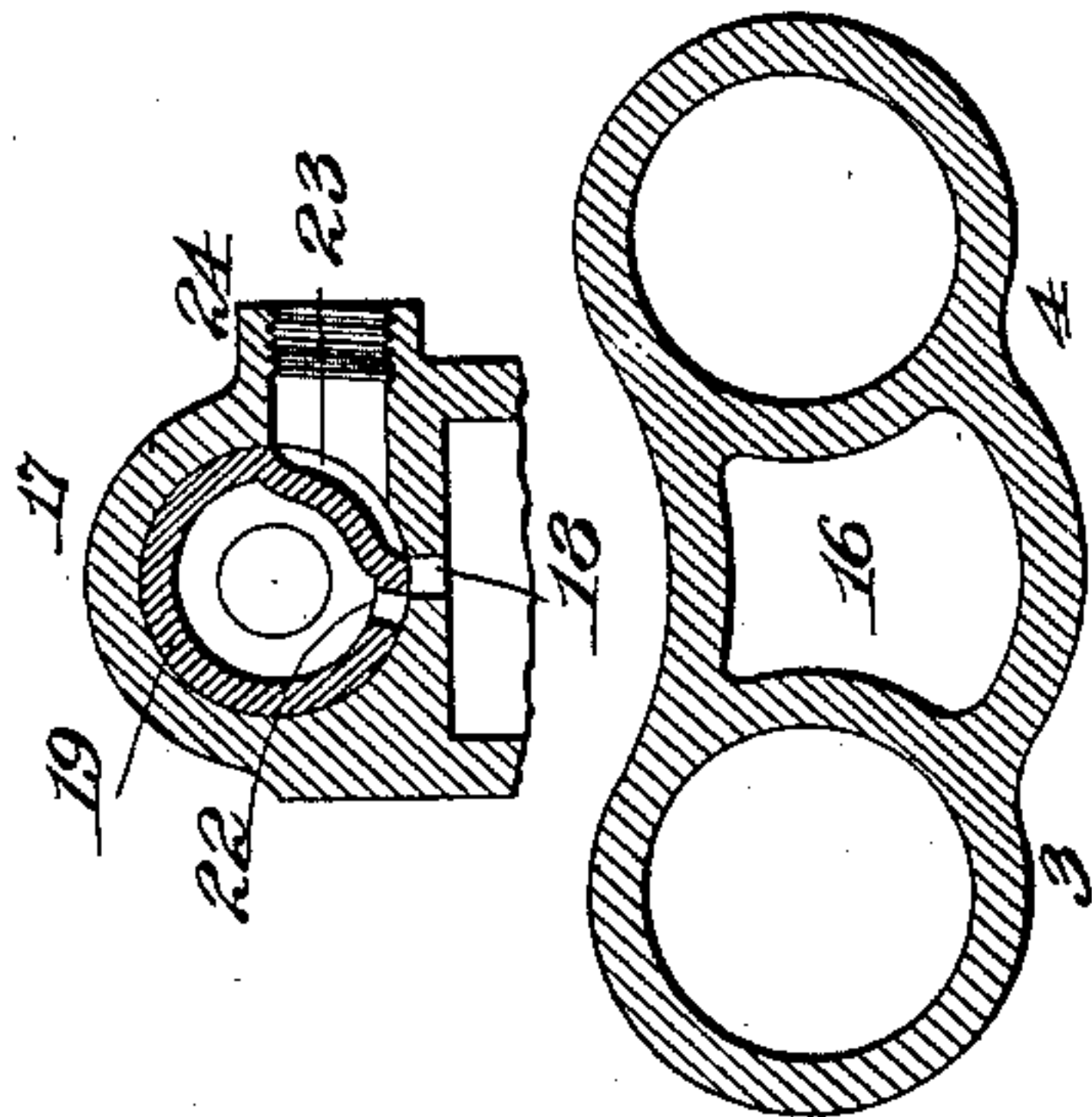


Fig. 4

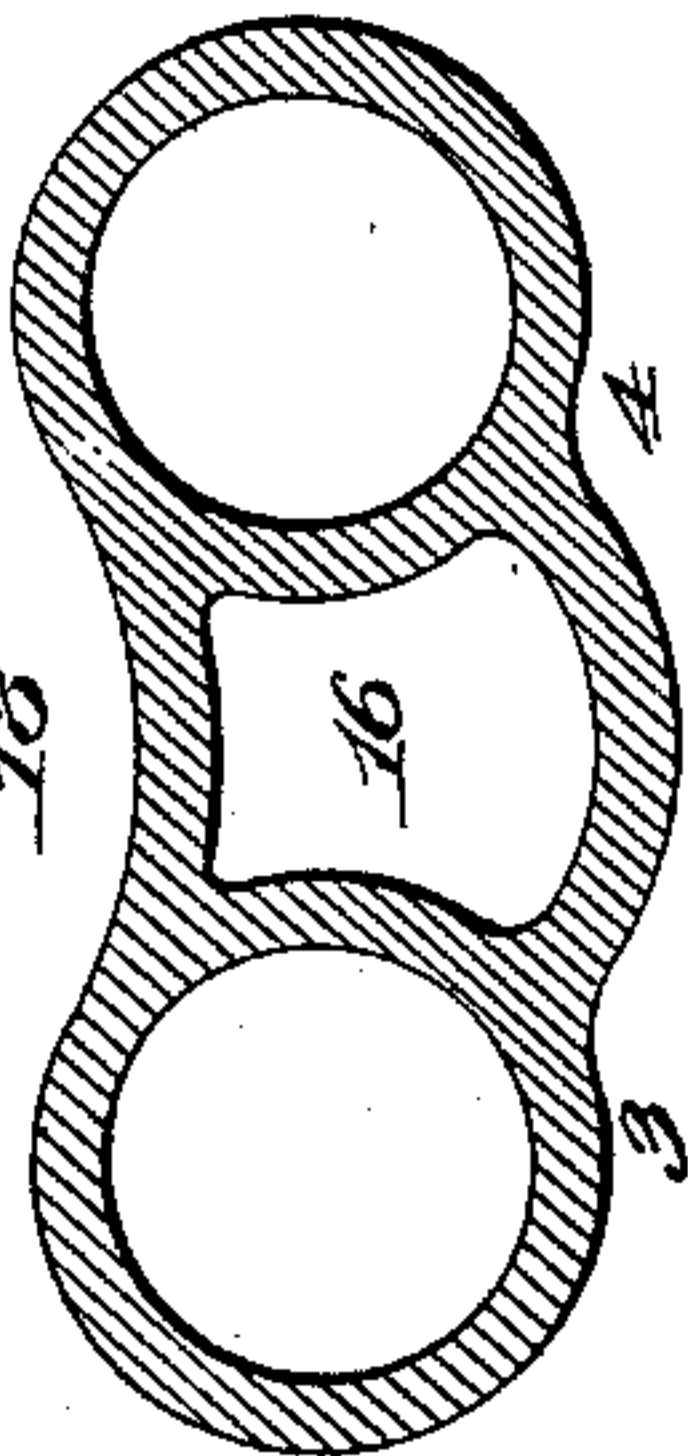
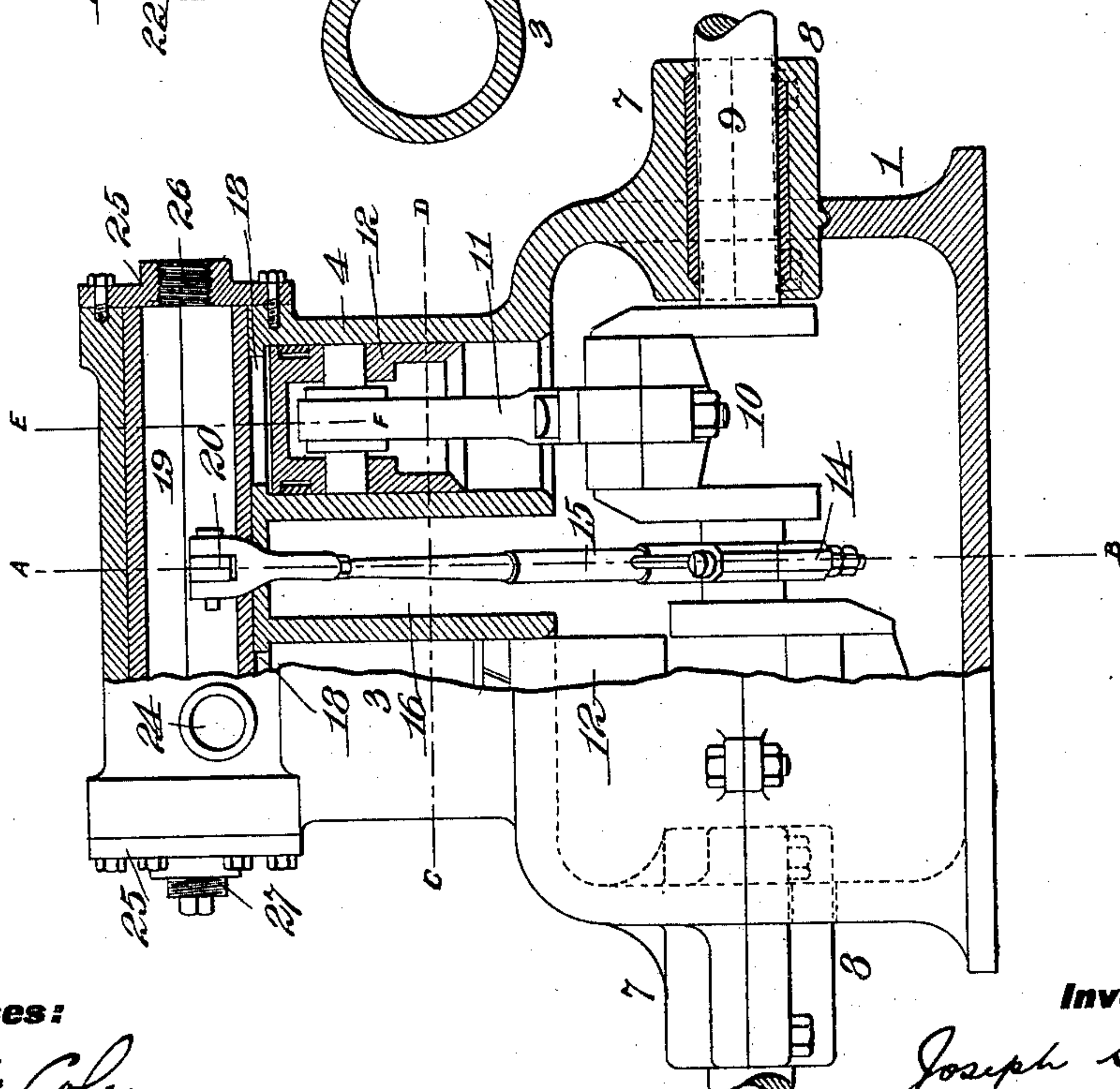


Fig. 1



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH SLOAN, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO THE GENERAL REFRIGERATION COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

COMPRESSOR-PUMP.

SPECIFICATION forming part of Letters Patent No. 688,033, dated December 3, 1901.

Application filed January 18, 1901. Serial No. 43,743. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SLOAN, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Compressor-Pumps, of which the following is a description.

My invention relates to improvements in compressor-pumps for compressing gases and vapors; and my object is to provide a simple, compact, cheap, and effective apparatus for the purpose.

In order that the invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a front elevation, partly in section, of the device; Fig. 2, an end view, partly in section, the section being taken on the line A B of Fig. 1; Fig. 3, a section on the line E F of Fig. 1, and Fig. 4 a section on the line C D of Fig. 1.

In all of the above views corresponding parts are represented by the same numerals of reference.

Although in the drawings I illustrate my invention in connection with a pump employing two cylinders, it will be obvious that one, three, or more cylinders may be utilized for carrying the invented idea into effect.

The base 1 of the pump is made in the form of a hollow bed, forming the lower half of an inclosed crank-casing, the upper half 2 being preferably cast with the cylinders 3 4 and being pivoted to the bed by hinges 5. The joint between the upper section 2 of the casing and the bed is dovetailed all around, as shown at 6, whereby the casing will be made sufficiently tight to contain oil for lubricating, if desired, or for containing water for cooling purposes. The upper section 2 of the crank-casing is preferably cast with the upper halves of the split bearing-boxes 7 7, which may be lined with a suitable antifriction metal, as shown, and the lining-sleeves may be held in position by removable lower halves 8, bolted in place. The operating-shaft 9 is mounted in the bearings thus formed and is furnished with a crank 10 for each cylinder, each of said cranks

actuating a rod 11, connected with a piston 12, working in the cylinder, as shown. Mounted on the shaft 9, between the two cranks 10 10, is an eccentric 13, provided with a strap 14, connected to an operating-rod 15 for the valve mechanism, said operating-rod working in a chamber 16, formed between the two cylinders 3 and 4, as shown. The valve-chamber 17 is preferably cast integrally with the cylinders, as shown, said chamber being provided with a cylindrical bore connecting with the cylinders by an elongated port 18. Mounted in the valve-chamber is a cylindrical valve 19, from which extends an arm 20, working in a slot 21 in the valve-chamber, and said arm is connected to the rod 15, whereby the rotation of the eccentric 13 will properly oscillate the valve, as will be obvious. The valve 19 is provided with ports 22 therein, adapted to register, respectively, with the ports 18, opening into the cylinders, and on its exterior the valve is provided with pockets 23, adapted also to register with said ports. An internally-threaded nipple 24 is formed on the valve-chamber opposite each of the pockets 23, whereby a gas or fluid will be permitted to enter each cylinder or to be forced out of each cylinder through said nipple when the pocket registers with the cylinder-port. The valve-chamber 17 is provided with two end caps 25, each being formed with an internally-threaded nipple 26, which communicates with the bore of the valve. A plug 27 is normally adapted to be engaged with one or the other of the nipples 26 to close the same, although it will be understood that an admission or discharge pipe may connect with each of said nipples.

In operation the gas or vapor to be compressed may enter the pump through the nipples 26, be drawn by suction through the hollow valve successively into the cylinders, and be compressed and forced out of each cylinder through the port 18, nipple 24, and port 22, or the reverse operation may take place, the gas or vapor being drawn into each cylinder through the latter nipple and being forced out of each cylinder through the ports 18 and 22 into the hollow valve and thence

through one or both of the nipples 26. Either operation may be made to take place by properly proportioning the location of the eccentric 13 to oscillate the valve 19 to bring the
5 port 22 or the pocket 23 into registration with the port 18 on the suction or compression stroke of the piston, whichever may be desired. Preferably the ports and pockets in the cylindrical valve are so arranged that
10 when the gas or vapor is being compressed by one cylinder the other cylinder will be drawing by suction a fresh supply of the gas or vapor therein, whereby the cylinders will operate in alternation, as shown. It will be
15 understood, however, that the pistons may be arranged to operate simultaneously, in which case the ports and pockets for all the cylinders will be correspondingly located in or upon the valve.
20 It will be seen that my improved compressor-pump is extremely simple in construction and is of effective operation. By making the crank-casing of two parts, as explained, it will be seen that the cylinders may be swung
25 to one side, so as to disclose the bed or foundation, in order to permit fresh quantities of oil or cooling liquid to be introduced therein or to allow the operating parts to be reached for purposes of repair.
30 Having now described my invention, what

I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a compressor-pump, the combination of a divided crank-casing, the upper part of which is hinged to the lower part, a cylinder 35 carried by the upper part of the crank-casing, a piston in the cylinder, an operating-shaft mounted in bearing-boxes carried by the upper part of the crank-casing, a crank on the operating-shaft, connections between the piston and the crank, and valve mechanism, substantially as and for the purposes set forth. 40

2. In a compressor-pump, the combination with a pair of cylinders, a valve-rod chamber between them, and a cylindrical valve-chamber 45 above the cylinders, all cast in one piece, of a crank-shaft, pistons in the cylinders connected with said crank-shaft, an eccentric on the crank-shaft, a valve-rod connected with the eccentric and located in the valve-rod 50 chamber, and an oscillating valve in the valve-chamber connected with the valve-rod, substantially as and for the purposes set forth.

This specification signed and witnessed this 14th day of January, 1901.

JOSEPH SLOAN.

Witnesses:

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