C. F. GOLDSBOROUGH & A. B. GREWE.

ROTARY PUMP.

APPLICATION FILED JAN. 19, 1912.

1,046,174.

Patented Dec. 3, 1912.

2 SHEETS—SHEET 1.

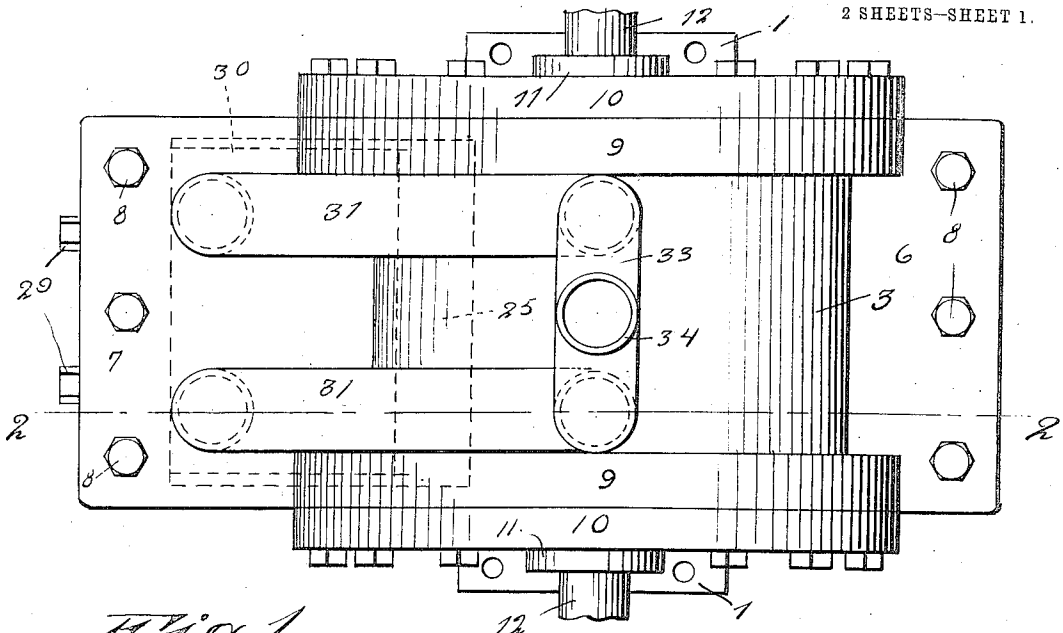

Fig. 1.

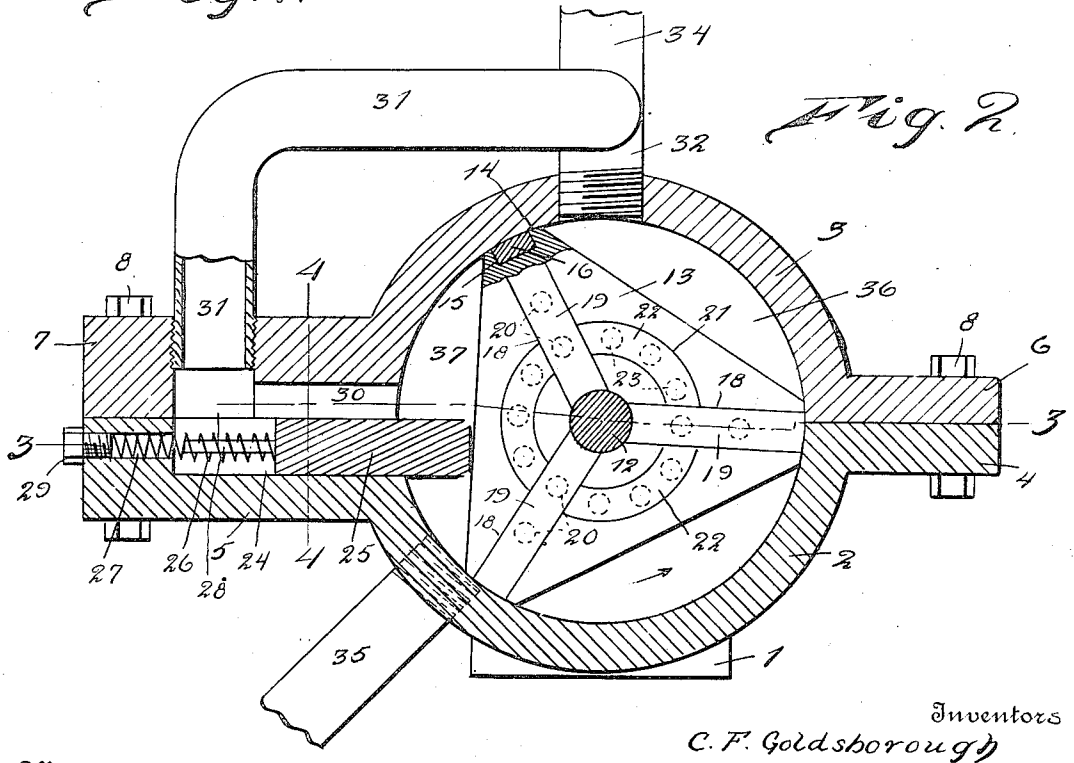

Fig. 2.

Witnesses

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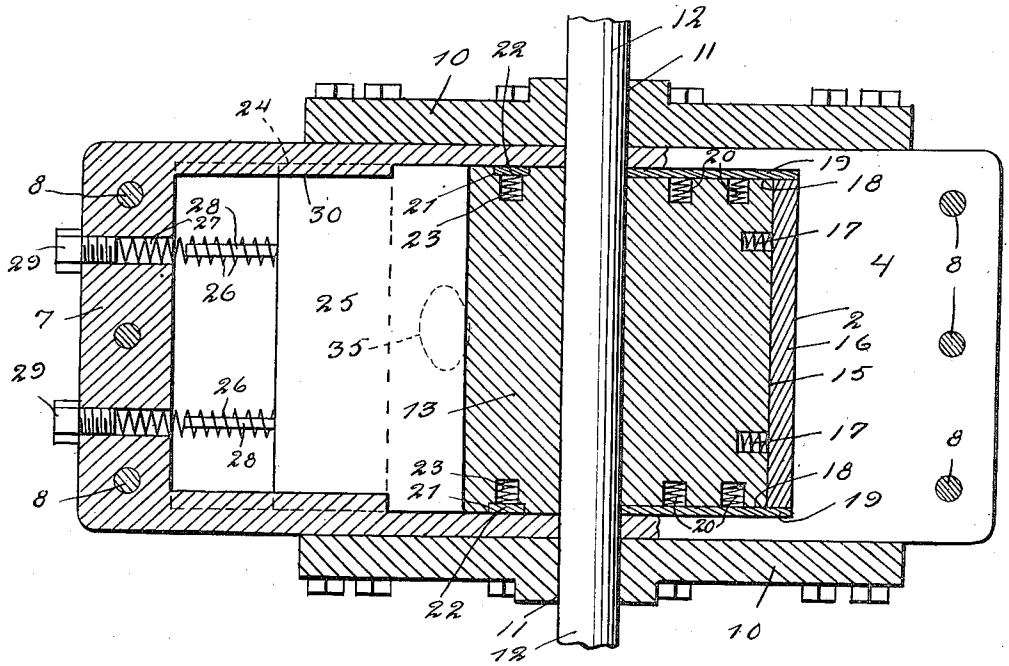

Fig. 3

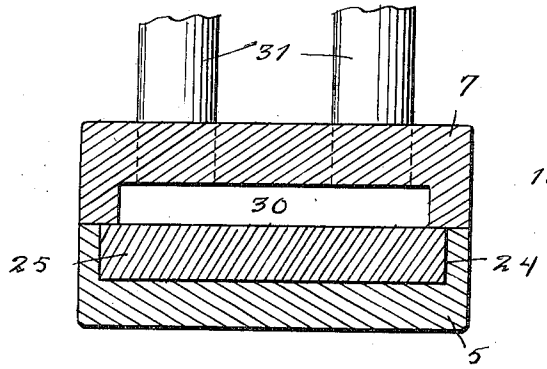

Fig. 4

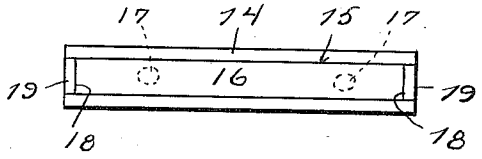

Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES FRANKLIN GOLDSBOROUGH AND ALOYSIUS BARNEY GREWE, OF MONETT, MISSOURI; SAID GREWE ASSIGNOR OF HIS RIGHT TO NORMAN B. GOLDSBOROUGH, AND SAID CHARLES F. GOLDSBOROUGH ASSIGNOR OF ONE-FOURTH OF THE RIGHT TO LUDWELL BROWN DURNIL, OF MONETT, MISSOURI.

ROTARY PUMP.

1,046,174. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed January 19, 1912. Serial No. 672,039.

To all whom it may concern:

Be it known that we, CHARLES F. GOLDSBOROUGH and ALOYSIUS B. GREWE, citizens of the United States, residing at Monett, in the county of Barry and State of Missouri, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

The present invention relates to a rotary pump of simple and novel construction.

An important object of the invention is to provide a device of the above mentioned character, which is constructed to dispense with all valves and is continuous and expeditious in operation.

A further object of our invention is to provide a rotary pump which is highly efficient in fulfilling its function, cheap to manufacture, strong and durable.

A further object of the invention is to provide novel means whereby the device automatically lubricates its working parts.

Other objects and advantages of this invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a plan view of the device, Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1, Fig. 3 is a horizontal sectional view taken on line 3—3 of Fig. 2, Fig. 4 is a vertical sectional view taken on line 4—4 of Fig. 2, and, Fig. 5 is a plan view of one edge or face of the rotary piston.

In the drawings wherein is illustrated a preferred embodiment of our invention, the numeral 1 designates a base upon which is disposed a lower semi-circular cylinder section 2, coöperating with an upper semi-circular cylinder section 3, as shown. These cylinder sections form the cylinder of the pump and are provided respectively with extensions 4, 5, and 6, 7. These extensions are rigidly connected by bolts 8 or the like. The cylinder sections 2 and 3 are provided at their ends with flanges 9, to which are bolted or otherwise secured heads 10, provided centrally thereof with bearings 11, for receiving a rotatable shaft 12.

Rigidly mounted upon the shaft 12 is a substantially triangular piston or core 13 of proper dimensions to operate snugly within the cylinder. The piston 13 is provided upon its edges or faces 14 with longitudinal grooves 15, receiving packing strips 16, which are forced outwardly into proper engagement with the side wall of the cylinder by springs 17, as more clearly shown in Fig. 3. The piston 13 is provided upon its ends with radially extending grooves 18, for receiving packing strips 19, held in engagement with the heads 10 by springs 20, as shown. The ends of the piston are further provided with segmental grooves 21, receiving segmental packing strips 22, held in engagement with the heads 10 by springs 23.

The extension 5 is provided with a horizontal opening 24 which leads to the interior of the cylinder. Disposed within this opening is a reciprocatory abutment 25, having engagement with the substantially triangular rotary piston 13. This abutment is moved inwardly by compressible coil springs 26, having their outer ends fitting within pockets 27 and their inner ends surrounding pins 28, which are rigidly attached to the outer end of the abutment. Screw-threaded plugs 29 close the outer ends of the pockets 27.

Formed through the extension 7 is a horizontal exhaust port 30, having communication with pipes 31. The pipes 31 are connected at their free ends with short vertical pipes 32, which lead into the cylinder midway the sides of the section 3. The short pipes 32 have connection with a common horizontal pipe 33 provided with a common exhaust pipe 34. Attention is called to the fact that the exhaust or discharge port 30 is placed above and near the abutment 25 while an inlet pipe 35 leads into the cylinder near and below the abutment.

The operation of the device is as follows: Assuming that the pump is employed to pump or compress air, rotation is imparted to the shaft 12 by suitable means (not shown), which is transmitted to the piston 13. The piston is considered as rotating in the direction indicated by the arrow, whereby air is drawn into the cylinder through the pipe 35 adjacent and below the sliding abutment 25. The air confined

between the upper surface of this sliding abutment and the piston 13 is compressed and forced through the port 30.

In order that the working parts of the device may be kept properly lubricated the pocket 36 may be partially filled with oil and upon the rotation of the piston 13 this pocket will assume the position designated by the numeral 37. It is thus seen that the oil will be pumped out of the cylinder together with the air and discharge through the port 30, thoroughly lubricating the abutment 25 and associated elements. The oil and air pass through pipes 31, the oil dropping through the pipes 32 and return to pocket 36 while the air is forced into pipe 33 and hence discharged through pipe 34.

Attention is called to the fact that although we have shown and described the device as being used as a pump or air compressor it may readily be used as a rotary steam engine, air or gas engine, without material alteration.

We wish it understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same and that certain changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:—

1. In a device of the character described, a shell, a rotatable piston disposed therein and forming with the periphery of the shell pockets, a sliding abutment having engagement with the piston, an exhaust conduit and an oil return conduit connected with the periphery of the shell at substantially ninety degrees apart, said oil return conduit serving to feed oil into each pocket formed between the piston and periphery of the shell when such pocket is moved into a position below the same, and a conduit establishing communication between the exhaust port and oil return conduit.

2. In a device of the character described, a shell, a rotatable piston disposed therein and forming with the periphery of the shell pockets, an exhaust conduit, a sliding abutment to engage the piston, a depending oil return pipe passing through the periphery of the shell and terminating at the inner surface of said periphery to supply oil at that point into the pocket, and a conduit connecting the exhaust conduit and the depending oil return pipe.

3. In a device of the character described, a shell, a rotatable piston operating therein and having extensions slidably engaging the inner surface of the periphery of said shell, a reciprocatory abutment for coöperating with said rotatable piston, a casing connected with said shell and having a sufficiently large opening formed therein to receive the abutment and provide an exhaust port adjacent the same, a plurality of pipes leading into said exhaust port, a common pipe connecting the free ends of the plurality of pipes, a final discharge pipe connected with said common pipe, a return pipe connected with said common pipe and leading into said shell and terminating adjacent the said inner surface of the periphery of the same to supply oil to the engaging parts of the shell and piston, and an inlet pipe connected with said shell.

4. In a device of the character described, a shell, a conduit connected with the periphery of the shell, a sliding abutment disposed in the conduit and only partially filling the opening thereof to provide an exhaust port having the abutment as one wall thereof, a rotatable piston disposed in the shell and having extension or extensions to slidably engage said periphery of said shell, a depending oil return conduit passing through the periphery of the shell to initially deliver oil into the shell adjacent the periphery, and a conduit connecting the exhaust port and depending oil return conduit.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES FRANKLIN GOLDSBOROUGH.
ALOYSIUS BARNEY GREWE.

Witnesses:
KITE HODGE,
EULA WHEELER.