

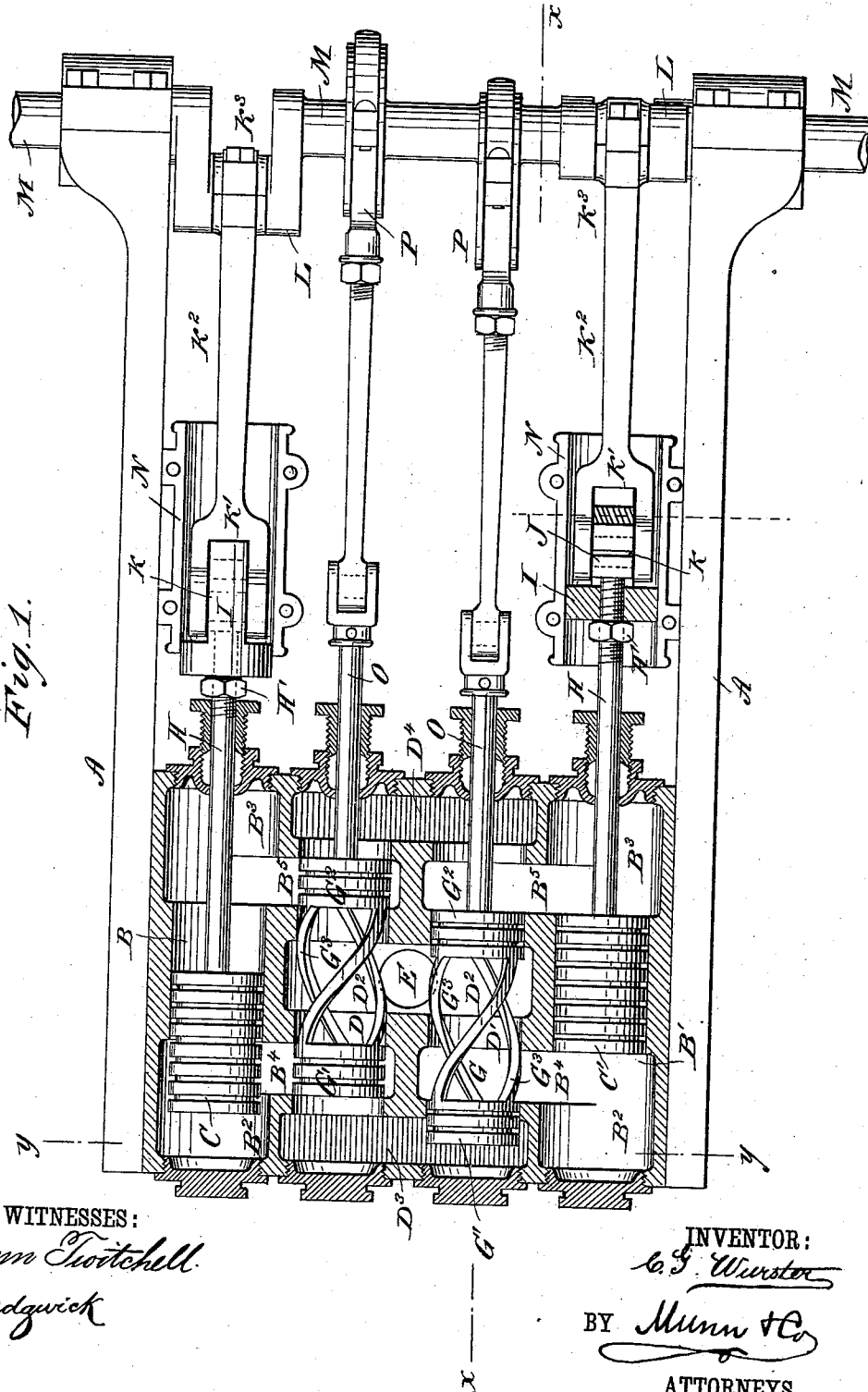
(No Model.)

C. G. WURSTER.
HYDRAULIC MOTOR.

2 Sheets—Sheet 1.

No. 330,863.

Patented Nov. 17, 1885.



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C. G. WURSTER.
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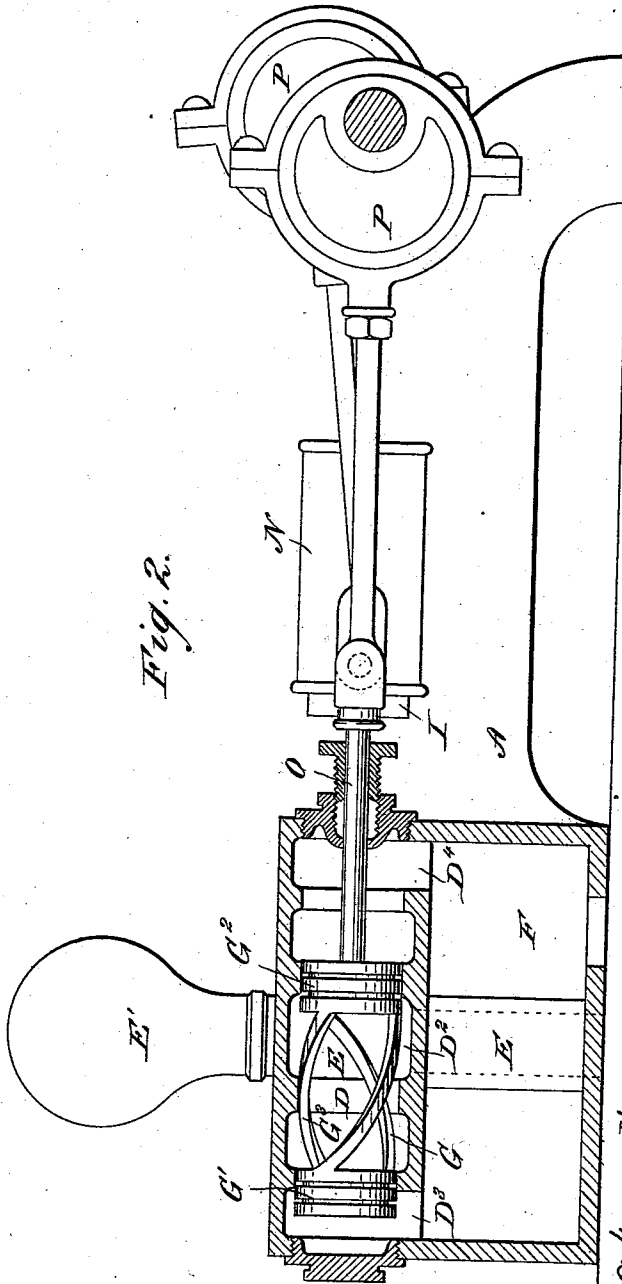


Fig. 2.

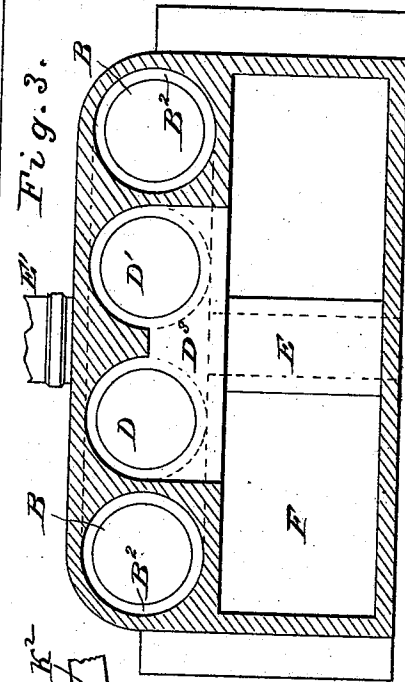


Fig. 3.

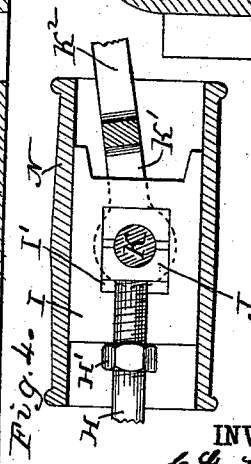


Fig. 4.

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CHRISTOPH G. WURSTER, OF HUDSON, NEW YORK.

HYDRAULIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 330,863, dated November 17, 1885.

Application filed September 1, 1885. Serial No. 175,917. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPH G. WURSTER, of Hudson, in the county of Columbia and State of New York, have invented a new and Improved Hydraulic Motor, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved hydraulic motor, which is simple in construction and produces a high speed.

The invention consists of two cylinders provided with pistons, of two cylindrical valve-chambers with slide-valves of special construction, of inlet and outlet ports, of an exhaust-chamber, and of connections for transmitting the motion to a common shaft.

The invention also consists of various parts and details, hereinafter more fully set forth and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a horizontal section of my improved hydraulic motor. Fig. 2 is a vertical section of the same on the line xx of Fig. 1, and Fig. 3 is a vertical cross-section of the same on the line yy of Fig. 1. Fig. 4 is a detail view, partly in section, of the cross-head I and parts adjacent thereto.

On the frame A are mounted the two cylinders B and B', provided with the pistons C and C', respectively. Each cylinder is provided with the recesses B² and B³, from which a connection is established with the valve-chambers D and D' by means of the ports B⁴ and B⁵. The valve-chambers D and D' are of cylindrical shape, and formed between the cylinders B and B' in the same horizontal line. Each valve-chamber is provided with a central recess, D², which connects the inlet-pipe E, which passes through the center of the exhaust-chamber F, situated underneath the cylinders B and B', and the valve-chambers D and D', and being a part of the frame A. The valve-chambers D and D' are also provided with the recesses D³ and D⁴, which are formed on each end of the chambers D and D', and open into the exhaust-chamber F. The slide-valves G consist of the two cylindrical pis-

tons G' and G², connected with each other by means of the spiral ribs G³, which act as supports to the pistons G' and G² as they pass across the ports B⁴ and B⁵, thus preventing the valves G from being damaged or injuring the valve-chambers D and D'. The pistons G and C' are each provided with a piston-rod, H, the outer end of which screws into the cross-head I and rests against the inner half of the journal-box J, placed in a recess, I', of the cross-head I. In this journal-box J is placed the pin K, secured to the forked inner end, K', of the pitman K². The outer end, K³, of the pitman K² is journaled to the crank-arm L of the main shaft M, mounted on the frame A. The cross-head I has its bearing and slides in the cylindrical-shaped guide N. The nut H' is placed on the piston-rod H near the cross-head I, and is used in adjusting the journal-box J. The slide-valves G and G are each provided with the valve-rods O, which receive a reciprocating motion by means of the eccentrics P, placed on the shaft M. The crank-arms L and the eccentrics P are so arranged that an alternate motion of the pistons C and C' and the slide-valves G is obtained. Above the inlet-pipe E is placed the air-reservoir E', which prevents the irregular flow of the water in the supply-pipe caused by the motion of the pistons C and C'.

The operation is as follows: The water enters through the inlet-pipe E into the valve-chambers D and D' by means of the center port, D², and from there flows into one end of either the cylinder B or B', according to the position of the respective valves G, and forces its piston in one direction, which piston imparts a rotary motion to the shaft M by means of the piston-rod H, the cross-head I, the pitman K², and the crank-arm L. The shifting of the valves G by means of the eccentrics P on the shaft M and the valve-rods O places the ends B² or B³ of either cylinder B or B' in communication alternately with the inlet-pipe E and the outlet-passages D³ and D⁴, so that the water exerts a constant pressure alternately against the front and rear ends of the pistons C and C', thereby giving a continuous rotary motion to the shaft M. The wear in the boxes J is taken up by screwing the piston H up against the inner half of the box J,

and then tightening the nut H' against the cross-head I.

Having thus fully described my invention, I claim as new and desire to secure by Letters

5 Patent—

1. In a hydraulic motor, the cylinders B and B', having the ports B⁴ and B⁵, and pistons C and C', in combination with the slide-valves G, consisting of the pistons G' G² and the spiral ribs G³, said valves G being placed in the valve-chambers D and D', having the recess D², into which enters the inlet-pipe E, and having the recesses D³ and D⁴, which open in the exhaust-chamber F, all arranged substantially as shown and described.

2. In a hydraulic motor, the cylinders B and

B', having the recesses B² and B³ and the ports B⁴ and B⁵, the pistons C and C', the piston-rods H, the cross-heads I, the pitmen K², the crank-arms L, and the shaft M, in combination with the slide-valves G, placed in the valve-chambers D and D', having the central recess, D², into which the inlet-pipe E enters, and having the recesses D³ and D⁴, opening into the exhaust-chamber, the slide-valve rods O, and the eccentrics P, placed on the shaft M, substantially as shown and described.

CHRISTOPH G. WURSTER.

Witnesses:

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