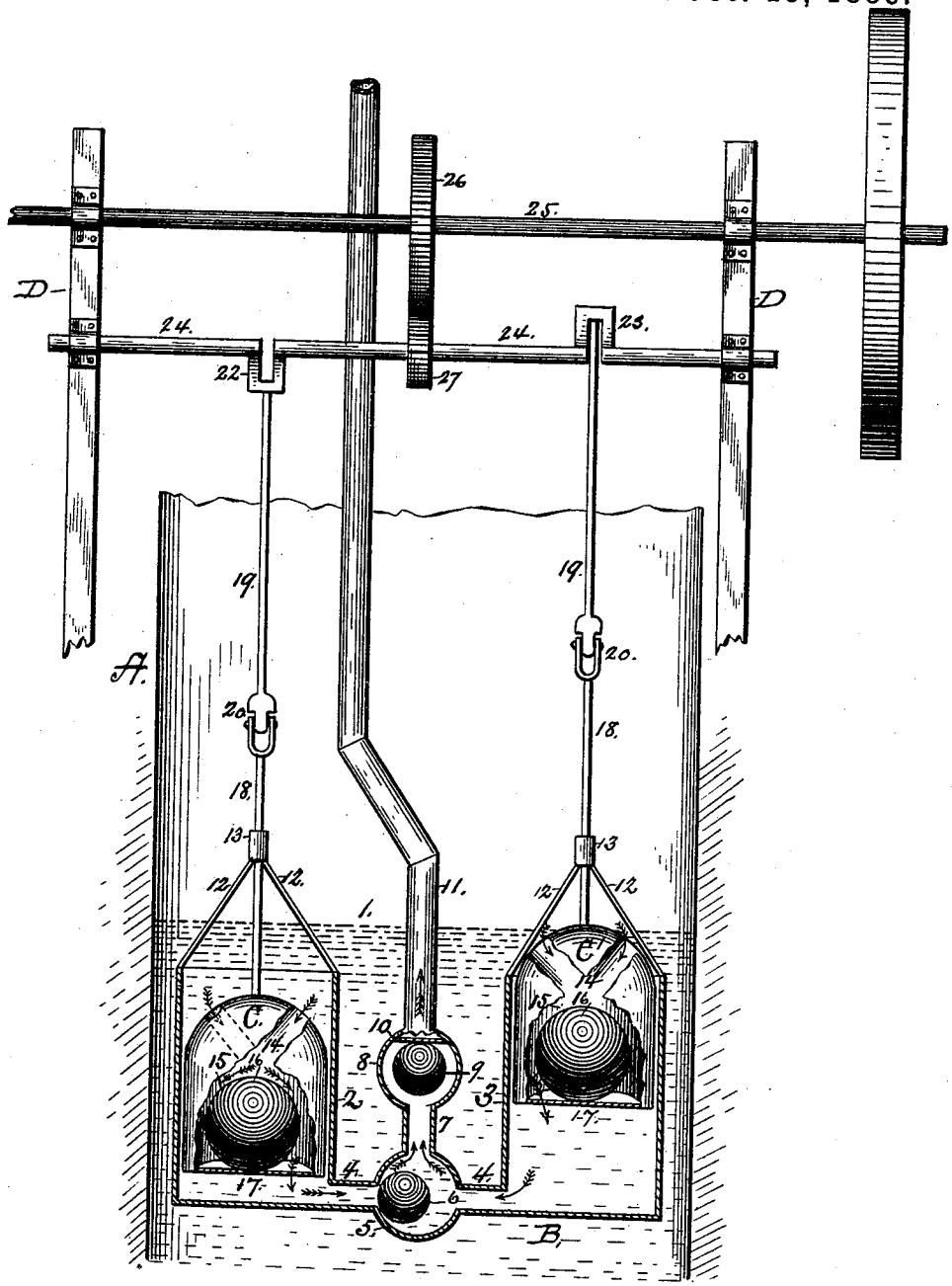
(No Model.)

J. M. SPARKS.

PUMP.

No. 351,288. Patented Oct. 19, 1886.



Witnesses
J. Thomson Cross.
Wm. H. Bates.

Inventor
John M. Sparks.
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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN M. SPARKS, OF NACOGDOCHES, TEXAS.

PUMP.

SPECIFICATION forming part of Letters Patent No. 351,288, dated October 19, 1886.

Application filed February 13, 1886. Serial No. 191,899. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. SPARKS, a citizen of the United States of America, residing at Nacogdoches, in the county of Nacogdoches, in the State of Texas, have invented a new and useful Pump, of which the following is a specification.

My invention has relation to improvements in pumps of that class known as "force-pumps;" and the object is to provide an engine or apparatus of the kind named, which is simple and durable in construction, and which is of large working capacity.

My invention consists in the novel construction and combination of parts as appear generally in the description given thereof, and specifically as is pointed out in the claim hereto, as required by the statute.

I attain the purposes of my invention by the means and mechanism illustrated in the accompanying drawing, wherein I have shown in a single figure the complete apparatus, the pump-buckets or caging and that part of the delivering-pipe containing the valves being shown in vertical central section and the valves in the plungers in perspective, with the walls of the plungers broken away to show the ball-valves and construction more completely.

Reference being had to the drawing, the letter A designates the well or reservoir, the water-line being indicated by the numeral 1.

The letter B designates the pump-buckets or cage. This is comprised of two cylindrical buckets, 2 and 3, of such capacity as may best adapt them to the work intended. They are formed with openings at the bottom leading into the water-pipe 4, which connects the two buckets together. This water-pipe 4 is formed with a globe-valve chamber, 5, in the middle, in which the ball-valve 6 is disposed and operates. Projected from the valve-chamber 5 is the discharge-pipe 7, which is formed with the valve-chamber 8, wherein is fitted the ball-valve 9. The chamber 8 has a stop-bar, 10, arranged across the upper part to stop the upward movement of the valve from interfering with the free progress of the water up through the discharge-pipe 11, which last may be extended to suit the requirement of location of the delivery-spout. The buckets are open at the top, and are sunk in the reservoir with the water-line above the upper rims, substantially as shown. To the rims of the buckets are secured brace-rods 12, having their upper ends fixed to a plunger-rod guide, 13, which latter consists of a sleeve adapted to receive the plunger-rod.

The letters C C' designate the plungers, which are of duplicate construction, and consist of cylinders having their upper ends rounded or pointed to lessen the resistance of their passage through the water. In the upper ends of the plungers are formed ways 14, which run into each other at the center of the plunger and open into the hemispheroidal valve-chamber 15, wherein is arranged the ball-valves 16, which are kept in the chamber by means of bars 17 arranged across the open bottom of the plungers, substantially as shown in the drawing. To the upper ends of the plungers are secured the plunger-rods 18, the lower section of which is passed through the sleeves or guides 13, and have jointed to them the upper sections, 19, as shown at 20, the upper sections of the plunger-rods being suitably attached to the cranks 22 23 on the shaft 24, mounted on bearings in the frame D. If the force to be applied to the pump be not great, the power may be connected directly to the crank-shaft by any well-known means; but should the capacity of the pump be large, then the power is preferably connected by means of gearing. I have shown the power as being a shaft, 25, mounted on the frame D, with a gear-wheel, 26, arranged thereon to mesh with a gear-wheel, 27, on the crank-shaft.

The operation may be stated as follows: As one of the plungers is drawn up, the ways are opened by the valve dropping, and the water passes through the ways into the bucket below the plunger. At the same time the plunger of the other bucket is forced down, the valve rising and stopping the escape of the water through the ways in that plunger, and the movement of that plunger forcing the water into the water-pipe at the bottom of the bucket and driving the valve in the last-named pipe against the mouth of the pipe leading from the other bucket, and forcing the water up into the discharge-pipe, thence to be delivered as described. If any check or

stop is made in the flow, the upper valve in the discharge-pipe drops in its seat and closes the pipe and prevents the column from escaping.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the pump-buckets 2 3, connected by a water-pipe, 4, formed with a globe-valve chamber, 5, provided with a ball-valve, 6, to close the ports in alternation, the discharge-pipe 7, leading from the valve-chamber and formed with a globe-valve chamber, 8, having a stop-bar, 10, short of its delivery-port, the plungers C C′, having plunger-rods arranged in a sleeve supported by rods projected from the sides of the buckets and formed with hemispheroidal valve-chambers 15 in the lower part, and water-ways 14, leading to said chambers, globe-valves 16, disposed in said chambers and held therein by keepers 17, and means, substantially as described, for reciprocating the plungers in alternation, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

JOHN M. SPARKS.

Attest:
R. H. IRION,
TOM R. JENNINGS.