

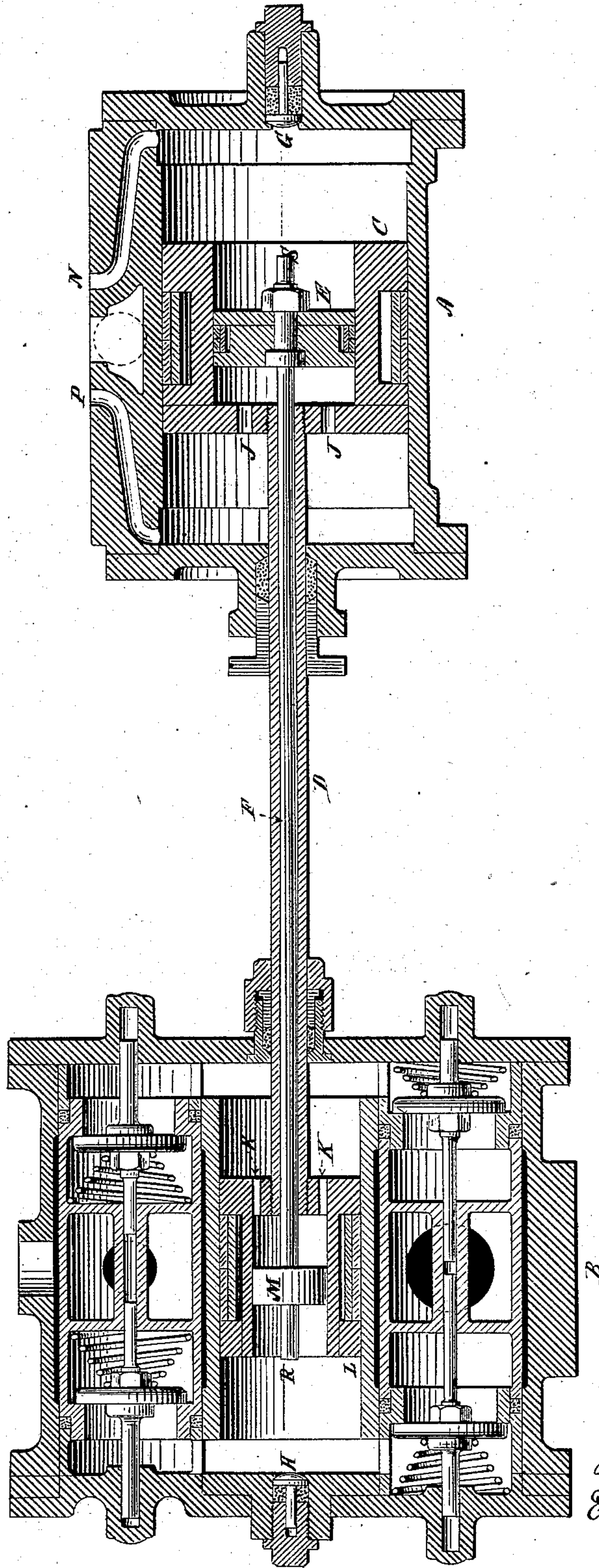
(No Model.)

J. H. BLESSING.

STEAM PUMP.

No. 283,064.

Patented Aug. 14, 1883.



Witnesses:

Geo. H. Mather
Geo. H. Evans

Inventor:

James H. Blessing,
By his attorney,
E. W. Dickerson

UNITED STATES PATENT OFFICE.

JAMES H. BLESSING, OF ALBANY, NEW YORK.

STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 283,064, dated August 14, 1883.

Application filed March 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BLESSING, of the city of Albany and State of New York, have invented a new and useful Improvement in Steam-Pumps, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

My improvement relates to an apparatus for avoiding or diminishing the jar or concussion occasioned by the operation of steam-pumps; and it consists in an apparatus by means of which the movement of the water is gradually started and stopped at each end of the stroke.

My invention will be fully understood from the accompanying drawings, illustrating in sectional elevation my improved pump, and in which—

A represents a steam-cylinder; B, a pump-cylinder, which may be provided with any proper valves.

C represents the main steam-piston, and L the pump-piston. Interior to the steam and pump pistons C L are the secondary steam and pump pistons E M. The ratio of the secondary steam-piston E to the water-piston M is greater than the ratio of the main steam-piston C to the water-piston L. The main pistons are connected by piston-rod D, and the secondary pistons by secondary piston-rod F, which should make a reasonably-tight joint within the exterior piston-rod, and, if desired, might be packed.

The operation of my apparatus can now be understood. Supposing the main and auxiliary pistons to be at the right of their respective cylinders, and steam to be admitted through the port N upon the right, this steam will tend to move both the piston E and the piston C to the left; but there being less resistance per square inch to the movement of the piston E, that piston will move first, and will therefore start the water in the pump-chamber by forcing out the water which is contained in the cylinder within the water-piston L. As soon as the piston E has brought up against the main piston C the two pistons will move together to the left until the tappet R of piston-rod F strikes the buffer H, when

the piston E will cease to move, and the main piston C will complete its stroke. By thus stopping the piston E the flow of water is decreased, for two reasons—in the first place because only the area of the piston L is then acting to force the water out, and in the second place because the piston M, retiring into its cylinder, affords an additional space for the water in the left of the pump-chamber.

The piston C having completed its stroke to the left, steam is admitted through the port P. This steam enters the interior steam-cylinder through the ports J, and the piston E is consequently the first to move to the right, thereby starting the water in the right of the pump-chamber, which water is in communication with the interior pump-cylinder by the ports K. The stroke is continued to the right until the tappet S strikes against the buffer G, and the main piston C has completed its stroke. Then the operation is reversed, as before.

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

1. The combination of an exterior steam-piston, open to the cylinder at its opposite ends and containing an interior piston, and an exterior water-piston, also open at the ends and containing an interior piston, whereby the interior steam and water pistons are operated before the movement of the exterior steam and water pistons, to gradually start and stop the movement of the water, substantially as described.

2. The combination of the exterior piston, C, open at both ends, the interior piston, E, piston-rods D and F, the exterior water-piston, L, open at both ends, and the interior water-piston, M, substantially as described.

3. The combination of the exterior piston, C, provided with ports J, the interior piston, E, piston-rods D and F, the exterior water-piston, L, provided with ports K, the interior water-piston, M, and the buffers G and H, substantially as shown and described.

JAMES H. BLESSING.

Witnesses:

GEO. H. EVANS,

ANTHONY GREF, Jr.